

Value creation from corporate divestitures: Evidence from European spin-offs over 1994-2006.

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ABSTRACT

Purpose of the study

In this Thesis I evaluate the value creation from corporate divestitures by studying European spin-offs over the period 1994-2006. I check the abnormal returns to parent shareholders following a spin-off announcement, and try to explain these returns by regressing them against relative size of the spin-off, increase in industry and geographical focus and change in operating performance. I also measure the long-run abnormal returns for the parent and the spun off subsidiary over five years around the announcement and the industry adjusted change in operating performance following a completed spin-off. The role of these tests is to facilitate the analysis regarding the sources behind the value creation.

Data

The data used in this study was collected from several sources. The spin-off events and company details were taken from SDC Platinum, financial statement information from Thomson OneBanker Worldscope database and the stock price information from Datastream. All this data was collected for the parents, spun-off subsidiaries and benchmarks. The final sample for testing the announcement effects consisted of 164 European spin-offs of which 120 were completed. The samples for testing long-run abnormal returns and changes in operating performance became smaller as data was not available for all observations.

Results

I find positive and statistically significant cumulative abnormal returns of +1.83% to the shareholders of the parent companies over (-1,1) days around the spin-off announcement. This value increases to 1.92% when only the sample of completed spin-offs is evaluated and further to 2.38% in the sample of only focus increasing spin-offs. This value creation is significantly related to the relative size of the spin-off. Increase in industrial focus, increase in geographical focus and change in operating performance show no significant explanation power. I also find insignificant long run abnormal returns for each subperiod in the four-year period around the spin-off announcement. Similarly, the change in operating performance, measured as the change in industry-adjusted return on assets, is not significantly different from zero over a five-year period around the spin-off announcement.

Keywords

Spin-off, divestiture, abnormal return, operating performance, event study

TIIVISTELMÄ

Tutkimuksen tavoitteet

Käsittelen tässä Pro Gradu –tutkielmassani Eurooppalaisten spin-offien arvonluontia vuosien 1994 ja 2006 välillä. Selvitän emoyhtiöiden osakkeiden ylituotot suhteessa markkinaindeksiin spin-offin julkistuspäivän ympärillä sekä pyrin selittämään näitä ylituottoja regressiolla, jossa selittävinä tekijöinä ovat spin-offin suhteellinen koko, toimialafokuksen kasvu, liiketoiminnan tehokkuuden muutos sekä maantieteellisen fokuksen kasvu. Mittaan myös pitkän aikavälin ylituotot sekä emo- , että tytäryhtiöille ja liiketoiminnan tehokkuuden muutoksen emoyhtiöille viiden vuoden ajanjaksolta julkistamispäivän ympärillä. Nämä tulokset toimivat apuna kun määritän syitä luodulle arvolle.

Data

Käytetty tutkimusdata on kerätty useista lähteistä. Spin-off tapahtumat sekä tiedot yhtiöistä keräsin SDC Platinum –tietokannasta, tilinpäätösinformaation Thomson OneBanker Worldscope –tietokannasta sekä osakemarkkinainformaation Datastreamista. Keräsin kaikki tiedot emoyhtiöille ja tytäryhtiöille. Lisäksi hain benchmark –arvot, joihin tuloksia verrataan. Lyhyen aikavälin osaketuottoihin liittyvissä testeissä verrokkina toimi kunkin maan yleinen osakemarkkinaindeksi sekä pitkän aikavälin tuottoihin liittyvissä testeissä yleinen eurooppalainen osakemarkkinaindeksi. Tilinpäätösinformaatioon liittyvissä testeissä verrokkina käytin puolestaan toimialan mediaanituloksia. Lopullinen otos koostui 164 julkistetusta spin-offista, joista 120 oli viety päätökseen.

Tulokset

Tutkimukseni eurooppalaiset spin-offit luovat keskimäärin +1,83%:n ylituotot emoyhtiön osakkeenomistajille julkistuspäivän ympärillä (-1,+1 päivää). Tämä tulos on tilastollisesti merkitsevä 1% merkitsevyystasolla. Päätökseen viedyillä spin-offeilla keskimääräinen ylituotto on +1,92% ja toimialafokusta lisäävillä spin-offeilla +2,38%. Tämä arvonluonti on positiivisesti yhteydessä spin-offin suhteelliseen kokoon. Muilla regression selittävillä tekijöillä ei ole tilastollisesti merkitsevää vaikutusta. Pitkän aikavälin ylituotot ja liiketoiminnan tehokkuuden muutos eivät kumpikaan eroa tilastollisesti nolasta.

Asiasanat

Spin-off, divestointi, ylituotto, liiketulos, event study

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1. Introduction

1.1. Background and motivation to the study

"The Board and management of Outokumpu believe that the listing of Outokumpu Technology as an independent company on the Helsinki Stock Exchange, with its own focus, will improve the strategic focus and prospects for continued business development for both companies, also considering the limited synergies between the two companies. As two listed companies, both Outokumpu's and Outokumpu Technology's valuations will be more transparent in the market."¹

Above is an extract from a press release from June 2006 by Outokumpu, a Finnish stainless steel company, justifying its decision to divest Outokumpu Technology, one of its subsidiaries that operates in a different sector than the parent company. Reasons listed for the divestiture in the press release are increase in strategic focus, limited synergies and transparency in the valuation of the two companies if traded separately. This example illustrates how concentrating on core business has recently gained popularity as a corporate strategy. Together with this trend towards focus, divestitures have become commonplace. In fact, corporate focus is the most cited reason for companies to divest. Divestitures generally mean disposing of parts of a business, and are effectively mirror images of mergers and acquisitions. We know that mergers and acquisitions are common and that they are generally associated with positive wealth effects. Why do divestitures occur then? Both fundamental finance theory and common intuition tell us that arbitrarily chopping a company into pieces cannot affect its value. Still divestitures are very common, so there must be some value consequences in them. And in fact it seems that there are; most previous studies, such as Schipper and Smith (1983) and Hite and Owers (1983), along with several recent papers, report positive abnormal returns following a spin-off or some other divestiture announcement. However, the sources of this value creation, although having been studied quite extensively, are not completely clear.

Generally companies have three basic alternatives available to them when they want to divest a part of their operations or assets. One of them is a spin-off. A spin-off is defined as a pro-rata distribution of a firm's subsidiary's shares to the shareholders of the parent

¹ Source: http://www.outokumpu.com/pages/Page____9933.aspx

company. A spin-off results in neither a dilution of equity nor a transfer of ownership. It effectively divides a consolidated firm into two or more firms with an identical initial set of shareholders and as a result an independent public entity is formed. The other two main divestiture types are an asset sale to an external buyer and an equity carve-out. An asset sale is a sale of a subsidiary to a third party that is usually privately negotiated and, like a bank loan or private placement, entails little public disclosure (Slovins et al. 1995). An equity carve-out is an initial public offering of subsidiary equity. It generates cash to the parent company in exchange for subsidiary shares. Generally parent companies retain controlling interest in the carved-out subsidiaries and therefore equity carve-outs are only partial divestitures. However, equity carve-outs often serve as the first step in the complete divestiture of the subsidiary. Occasionally they are used for the sole purpose of raising funds to e.g. repay debt and therefore cannot always be considered as pure divestitures.

As becomes evident from the definitions of the different divestiture types, spin-offs differ from asset sales and equity carve-outs in one substantial aspect; they do not involve a cash transaction. This feature of spin-offs among different divestiture methods makes them an interesting subject for studies regarding the value of business, organized as one entity vis-à-vis two separate entities. Because equity carve-outs and asset sales involve a cash transaction to the seller, it is possible that they are motivated by the cash payment in addition to, or instead of, efficiency reasons. Therefore these divestitures can be used as a means to raise capital as well as restructure the business. Spin-offs, on the other hand, are more pure restructuring decisions and hence the most suitable a divestiture type for my study.

1.2. Research problem, objectives and main findings

In this thesis I study European spin-offs and their wealth effects using stock market information and operating performance changes. What makes this particular study interesting is that there are very few studies so far done with European data, and even fewer of those that use accounting data to supplement stock market data. My study is in part based on Veld and Veld-Merkoulova (2004), who studied both announcement effects and long run stock performance of European spin-offs. Their findings on announcement effects were consistent with several U.S. studies, but their results on the long run stock performance

differed substantially from those of the U.S. studies. Therefore, in addition to verifying the announcement effects of European spin-offs, my study tackles the differences in the long run stock performances of the previous studies. The use of accounting data should facilitate this analysis.

The purpose of this study is hence to examine the value creation in European spin-offs using both the stock market reactions and accounting based operating performance measures. There are three main objectives in my study. The first objective is to check the stock market announcement effect of spin-offs in Europe over 1994-2006. The second is to find out the long run abnormal stock performance of these spin-offs and compare that to the results from the U.S. studies. The final objective is to explain the potential differences in the long run stock performance following spin-offs between Europe and the U.S. by analysing the industry adjusted post spin-off operating performance and checking the post spin-off takeover activity.

The research problem can be expressed with two research questions:

1. *Do European spin-offs lead to abnormal stock returns at the announcement as well as in the long run?*
2. *Does industry adjusted operating performance improve after spin-offs?*

The main findings of my thesis are the following. I find positive and statistically significant cumulative abnormal returns of +1.83% to the shareholders of the parent companies over (-1,1) days around the spin-off announcement. This value increases to 1.92% when only the sample of completed spin-offs is evaluated and further to 2.38% in the sample of only focus increasing spin-offs. This value creation is significantly related to the relative size of the spin-off. Increase in industrial focus, increase in geographical focus and change in operating performance show no significant explanation power. I also find insignificant long run abnormal returns for each subperiod in the four-year period around the spin-off announcement. Similarly, the change in operating performance, measured as the change in industry-adjusted return on assets, is not significantly different from zero over a five-year period around the spin-off announcement.

1.3. Related studies

Spin-offs have been studied quite extensively in the financial literature, especially in the U.S. The first spin-off studies were conducted in the early 1980s, with papers from Hite and Owers (1983), Schipper and Smith (1983) and Miles and Rosenfeld (1983). Most of the earlier studies report positive announcement returns to the shareholders of the parent company, ranging between +2.8% and +4.5%. These abnormal returns were positively related to the relative size of the spin-off. Also spin-offs of subsidiaries that operate in a different industry than the parent create more value than spin-offs of subsidiaries from a related industry. These results imply that focus has been one of the central value drivers in spin-offs.

Desai et al. (1999) also report positive significant abnormal returns at announcement. In addition, they found positive long run abnormal returns and significant improvements in the operating performance of focus increasing parents. Similar results were reported by Cusatis et al. (1993). They also added that the significant abnormal long run stock returns were strongly and positively related to the post spin-off takeover activity. Johnson et al. (1996) complemented the analysis of Cusatis et al. (1993) by studying a sample from which the subsequently acquired spin-offs were eliminated. They reported improved operating efficiency following the spin-offs. Overall the U.S. studies have found significant positive wealth effects through spin-offs using both the announcement effects and the long run performance, both from the stock market performance and accounting measures.

As already stated, most of the previous spin-off studies come from the U.S. However, one of the non-U.S. studies is that of Veld and Veld-Merkoulova (2004) who examined European spin-offs over 1987-2000. Consistent with the U.S. studies, they reported a positive announcement reaction of +2.62% to the parent's shareholders. On the other hand, unlike the U.S. studies, Veld and Veld-Merkoulova (2004) reported insignificant abnormal long run stock performance. Reasons for these differences between the studies remain unclear. The authors suggest that the European capital market can be more efficient than their U.S. counterpart, and conclude that the announcement effect already entirely captures the value effect of a corporate spin-off.

Another European spin-off study was carried out by Katja Keskitalo (2003). In her master's thesis she studied the announcement effects and the spin-off likelihood. Her finding of significant cumulative abnormal return of +3.27% at announcement is in line with the previous studies. She reported leverage, relative size of the spin-off and the firm size as sources of value creation. On the other hand, industry and geographic focus, shareholder protection, information asymmetry and growth prospects were not significant determinants of abnormal returns.

In addition to Keskitalo, several master's theses have dealt with spin-offs. Vainio (2007) studied in his master's thesis the characteristics and abnormal returns in Finnish corporate divestments between 2001 and 2006. He also found a positive and significant announcement return of +0.51% for his sample of 183 divestments of various types. Vainio reports a negative relationship between state ownership and abnormal returns, which is contradictory to his expectation. In the regression model, he used operating performance change as an explanatory variable but did not find conclusive results for the entire sample. In two sectors, namely consumer discretionary and consumer staples, the change in ROCE had significant explanatory power in abnormal returns.

Rejman's master's thesis is titled "Why Corporations Carve out or Spin off? Motivation and Market Response to the Announcements with Global Evidence 1994-2003". He studied 93 carve-outs and 127 spin-offs globally and found positive and significant CARs, +1.56% for carve-outs and +1.70% for spin-offs. Divestiture type choice and motivation to divest were studied carefully and the main conclusion was that bigger, less leveraged and more profitable parents tend to carve out rather than spin off.

Koivuneva (2008) studied in his master's thesis the interplay between M&A and spin-off decisions. He studied consecutive deals that include both a takeover and a spin-off and evaluated which one is generally done first. Koivuneva argues that in theory there should be no advantages for the sellers to reorganize before a takeover, i.e. facilitate the subsequent takeover, and thus there should not be more pre-acquisition spin-offs than there are those done after acquisition. However, his results show that pre-acquisition spin-offs are more common and that sellers try to make the subsidiary more attractive by reorganizing before acquisition.

Previous master's theses done at Helsinki School of Economics (HSE) have looked at spin-offs from several perspectives and thus form a comprehensive network of studies that help understand spin-offs. The issues covered include the magnitude of value creation, spin-off likelihood, the effect of state ownership on value creation, various motivations to divest and the interplay between acquisitions and spin-offs. We have learned that spin-offs create value in the amount of a few percentage points to the parent shareholders. We also know that spin-off as a divestiture type is chosen generally by more leveraged, smaller and less profitable companies and that spin-offs are sometimes used to facilitate subsequent acquisitions. However, the fundamental sources behind the value created through spin-offs is not addressed, and this is how my study aims to contribute to this web of spin-off studies conducted at HSE.

Overall, the previous studies show a strong consensus regarding positive announcement effects of spin-offs. However, both the scarcity of European research papers and the increased number of European spin-offs in recent years, together with partly differing results with the U.S. studies, suggest that there is still need for further research. Furthermore, previous studies have not presented a consensus whether the sources of value creation stem from efficiency or information reasons.

1.4. Contribution and limitations

This study contributes to the existing spin-off literature in the following ways. First, I use a more up to date and larger data sample than Veld and Veld-Merkoulova (2004) to verify their results on the announcement effects and long run stock performance of European spin-offs. Second, this is one of the first studies with European spin-off data that uses accounting based operating performance measures to further elaborate on the wealth effects. Third, my study provides indirect implications on the Efficient Market Hypothesis in European capital markets by looking at the long run abnormal returns following spin-offs, changes in operating performance and the subsequent takeover activity. Simultaneous analysis of these results allows to draw conclusions on whether all value created is immediately reflected in

the stock price as suggested by the EMH. Therefore, my study provides a very comprehensive evaluation of European spin-offs and their wealth effects. Finally, as the majority of the prior spin-off research is done using U.S. data, I have the opportunity to compare results obtained from completely different markets and potentially distinguish between fundamental and market specific explanations of these results.

Moreover, my study contributes to the series of previous master's theses on spin-offs done at Helsinki School of Economics by comprehensively evaluating the sources behind value creation. Previous master's theses have already examined the wealth effects, spin-off likelihood, subsequent takeover activity and motivations to divest. My study aims to complete this picture by offering explanations on the sources of value creation that together with the previous results increases the overall knowledge of spin-offs.

The main limitations in my thesis stem from data availability and the related method choices. First, some studies have used the standard deviation of analyst forecasts on earnings per share as a proxy for asymmetric information. I do not include a variable on asymmetric information in my regression model, since there was not enough analyst forecast data available for the companies in my sample. Therefore, I have to resort to indirect evidence on the effect of information asymmetry on spin-off value creation based on results from efficiency variables. Second, finding feasible matches for each of the sample companies from their own industry and country in Europe presented such difficulties that I had to resort to using industry medians and a general European stock market index as benchmarks. I must note that these methods are also well approved in financial literature and that they have been shown to provide very similar results with the matching firm approach (Desai and Jain, 1999), but my first choice of method would have been matching firm approach rather than using industry medians and an equity index.

1.5. Structure of the study

The rest of this paper is organized as follows. The next section more thoroughly reviews the earlier literature on divestitures and spin-offs and presents the theoretical framework that is used in the hypothesis building. Section 3 then outlines the hypotheses that are based on the

theoretical framework and tested in the empirical part. Section 4 presents the data used and section 5 the methodology employed in the study. Section 6 gives the empirical results obtained and their analysis as well as interpretation. Finally section 7 concludes the thesis and gives suggestions for further research.

2. Literature Review

In this section I present the main issues covered in the previous studies. First I present the possible motives for companies to carry out divestitures. This discussion is based on fundamental corporate finance theories and the related potential reasons why spin-offs might create value to shareholders. The second part of this section outlines the empirical results from previous spin-off studies.

2.1. Potential sources of wealth gains

This subsection presents the potential reasons why spin-offs might create shareholder value. A relevant starting point for this analysis is found from the familiar propositions by Modigliani and Miller (1958, 1961) on capital structure and dividends. They argue that in a world without transaction costs and with perfect information symmetry, the value of a firm is independent of its capital structure and dividend policy. This theory can be applied to divestitures as well. Their theory suggests that with the same assumptions of zero transaction and information costs the corporate organization is irrelevant. There are two important implications from these theories to my thesis. First, firm value cannot be increased by arbitrarily chopping it into pieces. Second, if value creation is possible through divestitures, the sources for value increase must come from Modigliani and Miller's assumptions and their infeasibility in the real world. In other words, possible sources of wealth gains must stem from either information or transaction costs (e.g. improvement in efficiency).

There are three main theoretical explanations for the value creation through corporate restructurings. First is the theory on incentives and monitoring costs, put forward by Alchian and Demsetz (1972) and developed by Jensen and Meckling (1976). At the heart of this theory is the idea that divestitures can facilitate monitoring of companies through lower monitoring costs, put pressure on the management and thus improve performance. Second explanation emphasizes the significance of information in corporate valuation. Myers and Majluf (1984) argue that corporate restructurings can signal information because managers

possess information not known to the market. The third theoretical explanation comes from the early work of Coase (1937), where he argues that the choice between firm and market is a function of relative transaction costs. According to this theory restructurings occur as a response to changes in transaction costs. In conclusion, divestitures can be rational decisions on theoretical grounds, and they can have an effect on the value of the company. The assumptions in the MM irrelevance hypothesis do not hold in the real world and divestitures can reveal information, improve efficiency or do both at the same time to affect the firm value.

Next I am going to discuss company focus and its effect on value. Given the reasoning above, the structure of a company can have an effect on the value of the business. Furthermore, corporate focus is often cited as one of the main reasons to divest assets or subsidiaries. Hence it is natural to start the literature review by looking at the studies on focus and diversification before moving on to spin-off specific studies.

2.1.1. Focus vs. diversification

A distinct body of finance literature has given attention to diversification's effect on firm value. Majority of these papers, such as Berger and Ofek (1995), Comment and Jarrell (1995), Daley et al. (1997) and John and Ofek (1995), report a significant diversification discount. However, later studies by Graham et al. (2002) and Villalonga (2004a, 2004b) question these findings by pointing out certain shortcomings in the previous studies. Villalonga (2004a) even reports a diversification premium.

Berger and Ofek (1995) imputed stand alone values for diversified companies' different business segments. Comparison of the sum of these values to the company value was used to reveal any diversification effect on value. The median ratios of total capital to assets, sales and earnings for single-segment firms were computed for a given industry. For multiple-segment firms these ratios were multiplied by the firm's values in each segment and summed to create an imputed value as a weighted average. Berger and Ofek (1995) used a ratio of actual value to imputed value as a measure for excess value. They report a diversification discount of 13-15%. The reasons behind these results were overinvestment in segments of

low Tobin's q , and therefore low growth opportunities, and cross-subsidization of poorly performing divisions. The diversification discount was reduced by a modest decrease in taxes and it was also positively related to the number of business segments in the company.

Comment and Jarrell (1995) took a different approach to study the effect of diversification on firm value. They analysed the trends in corporate focus during the 1980s and used stock market data to compute the related wealth effects. They reported that corporate focus increased significantly between 1979 and 1988, using five different measures. Furthermore, this increase in focus was associated with wealth gains when focus was measured with asset- or revenue based Herfindahl index. These findings support the diversification discount, also reported in Berger and Ofek (1995). Finance theory suggests that diversification increases company's debt capacity. Comment and Jarrell (1995) tested this hypothesis and found that, on the contrary to theory, debt capacity usage did not seem to increase with diversification.

Daley et al. (1997) used spin-offs to study the wealth effects of focus and diversification. More specifically, they tested whether spin-offs of subsidiaries that are from an unrelated industry create more value than spin-offs of subsidiaries that are from the same industry as the parent. They report an abnormal return of +1.6% for related industry spin-offs and an abnormal return of +4.5% for unrelated industry spin-offs. This suggests that focus creates value and diversification discount exists. Daley et al. (1997) used also accounting measures to study the change in operating performance following the spin-off. They report a significant improvement in the operational efficiency of the parent company. Moreover, the source of the increase in the return on assets was improved profit margin through costs savings rather than asset turnover. On the contrary to Berger and Ofek (1995), cross-subsidization of poorly performing units within the firm did not contribute to these results.

John and Ofek (1995) studied 258 asset sales over 1986-1988 and found a cumulative abnormal return of +1.5% at announcement. Regression analysis showed that sale of unrelated assets creates significantly more value than sale of related assets. This finding is consistent with previous studies and the corporate focus hypothesis, which states that focused companies operate more efficiently. John and Ofek (1995) checked this using accounting measures and reported that the operating performance of the seller indeed improved. In addition, some of the seller's gains stemmed from a better fit between the sold

asset and the buyer. The reported motivation for divestitures was the elimination of negative synergies and improving the profitability and efficiency of remaining assets. These also seemed to be the sources of wealth gains found. As mentioned earlier in the thesis, there is a cash transaction involved in asset sales and thus they can be motivated by means of raising cash rather than increasing efficiency and focus. However, John and Ofek (1995) tested this and reported that focus had more weight than the usage of sale proceeds in explaining the value change. Thus the evidence is in favour of the diversification discount.

Studies conducted in the 1990s systematically report the existence of a diversification discount. A paper by Graham et al. (2002) questions these findings. They used 365 diversification-increasing acquisitions over 1980-1995 and report combined CARs of +3.4%. When Berger and Ofek (1995) technique was applied the excess value was substantially reduced producing rather mixed results. Overall, these results question the existence of the diversification discount and focus as a value-enhancing driver. They claim that diversification discount is linked to the characteristics of the acquired firms, more specifically they being already discounted when acquired. Therefore stand-alone companies cannot be used as a benchmark for corporate segments. Consequently, the diversification discount reported in earlier studies is most likely overstated because they use these incorrect benchmarks for conglomerate divisions.

Belen Villalonga completed two related studies in 2004 regarding diversification's effect on firm value. She used Business Information Tracking Series (BITS) to examine whether the earlier reported diversification discount is merely an artefact of segment data. BITS is a new census database that covers the entire U.S. economy at the establishment level and, according to the author, enables the construction of business units that are more consistently and objectively defined than segments. Villalonga (2004a) used the BITS data on a sample that produced a diversification discount according to segment data, and in fact, reported a diversification premium. She concluded that the results in previous studies have been affected by the noisiness of the segment data. Her findings still lack support from other studies and the main contribution of this paper was to question the data used in the previous studies and hence pinpointing new requirements for the further research.

A related paper by Villalonga (2004b) asks whether it is diversification itself that causes the reported diversification discount, or some other factor. First, she verifies the finding of her earlier paper that, on average, diversification does not destroy value. She argues that propensities to diversify differ across companies and hence there is non-randomness of diversification that must be accounted for. When this non-randomness is controlled for, the diversification discount diminishes. Villalonga notes that the assumptions behind these methods are not fully supported by corporate data. However, the shortcomings of previous studies reporting diversification discount are pointed out, and the question still remains.

I have outlined the most important studies regarding corporate focus, diversification and their effects on firm value. Most of the studies from the 1990s report a strong and significant diversification discount and a positive relationship between focus and value. However, later studies from the 21st century challenge these findings by pointing out certain limitations in the earlier studies. Then again, the existence of a diversification premium is not widely reported either and the question remains unresolved. Nevertheless, the fact remains that divestitures are common and corporate focus is one of the most cited reasons for them. Next I will go over the specific reasons why spin-offs might create value.

2.1.2. Information asymmetry

Complexity, undervaluation and pure play

This explanation is based on the information asymmetry between shareholders and managers as well as on the ability of investors to value companies, i.e. transparency of the companies. Due to separate reporting requirements, spin-offs result in greater information and transparency for a subsidiary that starts trading separately, and it is assumed that investors are attracted to such pure plays. Moreover, different investors have different preferences; they are heterogeneous. Therefore, separated divisions can attract different investor groups and thus increase the overall demand for the shares. Examples include preferences towards growth stocks vs. value stocks and the much related capital gains vs. dividends. These preferences stem mostly from the tax clientele effect, but other issues such as risk aversion

contribute as well. Information asymmetry hypothesis is presented among others in Vijn (2002) and Hulburt et al. (2002).

2.1.3. Efficiency explanations

Efficiency explanations cover several hypotheses that explain how spin-offs facilitate the improvement in the efficiency of the operations, investment decisions etc. of the organization. Below are brief descriptions of three of the most common efficiency hypotheses related to divestitures.

Corporate Focus Hypothesis

Corporate focus hypothesis suggests that increased corporate focus allow managers to concentrate on the core operations because their attention is not diverted across many divisions that operate in very different industries. This in turn translates into more efficient operations and better performance, which create value. Corporate focus hypothesis one of the most well known explanations behind value creation through divestitures, and is well presented in e.g. John and Ofek (1995).

Incentive Alignment Hypothesis

Spin-offs enable firms to offer stock-based compensation to subsidiary's managers. This in turn is expected to motivate them to work more efficiently and exploit investment opportunities. Subsidiary managers cannot be offered such incentives because there are no separate subsidiary shares. If the managers' compensation was tied to the stock performance of the parent, they might feel that they do not have enough control over it and lack the motivation to improve their performance. The reasoning behind incentive alignment hypothesis is well presented in Daley et al. (1997).

Investment Efficiency

If management is not doing a good job in replicating financial markets, capital allocation can be inefficient and a spin-off can increase the firm value through improved investment

opportunities. Spin-offs thus reduce the problem of cross-subsidization of poorly performing divisions. Investment efficiency is thoroughly dealt with in Allen et al. (1998).

2.1.4. Other explanations

There are a few other explanations or hypotheses that explain the logic behind value creation through spin-offs that do not fall into either efficiency or information category. These explanations come either from theoretical reasoning or empirical results from previous studies.

Expropriation Hypothesis

According to this hypothesis, the positive stock price reactions can be caused by wealth transfers from bondholders to stockholders. If that were the case, the value of the company would not change; the stockholder's gain would merely be the bondholder's loss. There are mixed results from the U.S. studies, but certainly expropriation cannot completely explain the value creation from spin-offs. Expropriation hypothesis is not feasibly testable in this study since bilateral bank loans instead of bonds are very common in Europe.

Relative Size

This explanation simply states that relatively larger spin-offs create more value and is mainly based on the results from earlier studies. Explanations for the relative size effect include efficiency improvements and information signalling. Intuitively, if spin-off is a mechanism by which company value is increased by getting rid of something that decreases value, then logically by getting rid of a larger proportion of this strain on value should increase the value of what is left more. Relative size as a source of value creation is supported in Schipper and Smith (1983), Krishnaswami and Subramaniam (1999) and Miles and Rosenfeld (1983) among others.

Taxes and regulation

The U.S. studies have found some effects on value created through spin-offs due to taxes or regulatory issues, but these are relatively irrelevant in Europe due to differences in the two markets. In the U.S. some spin-offs are taxable, and studies have found that these spin-offs create less value than those that are not taxed. Veld and Veld-Merkoulova (2004) argue that in Europe spin-offs do not generally create tax problems, because it is possible to defer tax payments. Furthermore, in Germany and France, two of the central markets in Europe, it is not known in advance whether a spin-off will be taxed or not. The actions of the investors post-spin-off determine the total tax effect of a spin-off. For these reasons, taxes are not included in the analysis in this thesis.

Geographical focus

Geographical focus is increased when the spun-off division is foreign. Ex-ante, the value effect can be negative or positive (Veld and Veld-Merkoulova (2004)). Arguments in favour of a negative value effect include the reduced economies of scale in production, signalling of a poor previous decision and the relative disadvantage to competitors who do operate internationally. One of the arguments for a positive value effect is the reduced monitoring and coordination costs through reduced complexity. Another one is that the global diversification could have been done to reduce the managers' own risk at the expense of the shareholders in the first place. Thus reversing this ill-advised decision increases value. Finally, also the possibility of cross-subsidisation of poor divisions may be reduced following an increase in geographical focus. The overall effect is naturally determined by the relative strengths of these various arguments.

2.2. Empirical results on spin-offs

This section covers the empirical evidence regarding value creation through spin-offs. I will first go through the announcement effects and long run stock performance following spin-offs, after which I present evidence on the sources of these wealth effects. The section concludes with some evidence on the type of divestiture selected by managers.

2.2.1. Shareholder returns at announcement

As mentioned already, the reported announcement returns following a spin-off have been positive, statistically significant and of the magnitude of around +3-4%. Table 1 below summarizes the announcement effects of corporate spin-offs from the most important previous studies.

Table 1. Abnormal returns from spin-offs

Research paper	Time Period	Sample Size	Event Window	Parent Return
Miles and Rosenfeld (1983)	1963-1980	55	(0,+1)	3.34 %
Hite and Owers (1983)	1963-1981	123	(-1,0)	3.30 %
Schipper and Smith (1983)	1963-1981	93	(-1,0)	2.84 %
Daley et al. (1997)	1975-1991	85	(-1,0)	3.40 %
Desai and Jain (1999)	1975-1991	143	(-1,+1)	3.84 %
Krishnaswami and Subramaniam (1999)	1979-1993	118	(-1,0)	3.15 %
Mulherin and Boone (2000)	1990-1999	106	(-1,+1)	4.51 %

Table 1 shows a summary of selected previous studies on abnormal returns resulting from spin-offs. All the papers report a positive and significant abnormal return for parent shareholders at announcement, ranging from 2.84% to 4.51%.

2.2.2. Long run stock performance

The long run stock performance after spin-offs has been studied much less than the announcement effects. This is probably in part due to methodological difficulties. Another reason may be that it can be argued to be pointless, since assuming efficient markets, there should be no long run abnormal returns. However, the few papers that have studied this in the U.S. have found significant long run abnormal stock performance. Desai and Jain (1999) report a long run abnormal return for focus increasing spin-offs of 25.37% over 3 years after the spin-off. The result is significant at 5% level. Cusatis et al. (1993) studied the long run abnormal returns of spin-offs in conjunction with post spin-off takeover activity. They report a long run abnormal return of 20.0% over 24 months and 24.3% over 36 months for the entire sample of 146 spin-offs. Both results are significant at the 10% level. The subsample of spin-offs that were subsequently taken over provides even stronger results. The abnormal

return for the 24-month period was 62.3% and for the 36-month period 99.3%, both statistically significant at 1% level. They conclude that the abnormal long run performance is mainly caused by the post spin-off takeover activity and the related acquisition premium.

As mentioned earlier, the only European study by Veld and Veld-Merkoulova (2004) reported insignificant long run abnormal returns. The discrepancy between the results from Europe and the U.S. was explained by different levels of capital market efficiencies. The results of Cusatis et al. (1993) offer post spin-off takeover activity as a potential cause for the differing results. If takeovers of spun-off companies are more common in the U.S. than in Europe, this can explain the difference in long run abnormal returns.

2.2.3. Sources of wealth gains

There remains very little uncertainty regarding the existence of positive abnormal returns following spin-off announcements in the financial literature. However, the sources and reasons offered to this value creation come in many forms. The potential sources why spin-offs might create value were presented in section 2.1., and here I outline the empirical findings regarding them.

One common source of value creation in most studies is the relative size of the spin-off. Hite and Owers (1983), Miles and Rosenfeld (1983), Krishnaswami and Subramaniam (1999) and Vijn (2002) all show highly significant size effect in value creation from divestitures. Another common source of wealth gains is the increase in focus. The spin-offs of unrelated subsidiaries result in significantly higher abnormal returns than do spin-offs of related subsidiaries. Table 2 below summarizes the results of selected papers regarding focus-increasing divestitures, both spin-offs and equity carve-outs. A couple of points are worth mentioning here. First, unrelated spin-offs seem to create more value than related spin-offs, suggesting that focus increases value. Second, this difference is smaller with equity carve-outs than with spin-offs. One already mentioned reason for this is that equity carve-outs involve a cash payment and can therefore be motivated by it rather than efficiency reasons.

Table 2. Related vs. unrelated divestitures

Research paper	Divestiture Type	Time Period	Related Determined	Related Return	Unrelated Return	Difference
Krishnaswami and Subramaniam (1999)	Spin-off	1979-1993	2-digit SIC	1.86 %	3.59 %	1.73 %
Daley et al. (1997)	Spin-off	1975-1991	2-digit SIC	1.60 %	4.50 %	2.90 %
Desai and Jain (1999)	Spin-off	1975-1991	2-digit SIC	2.71 %	4.45 %	1.74 %
Boone (2000)	Spin-off	1985-1990	2-digit SIC	0.85 %	4.07 %	3.22 %
	Spin-off	1991-1996	2-digit SIC	3.29 %	4.82 %	1.53 %
Allen and McConnell (1998)	Carve-out	1978-1993	2-digit SIC	6.56 %	5.83 %	-0.73 %
Boone (2000)	Carve-out	1985-1996	2-digit SIC	2.91 %	2.76 %	-0.15 %
Vijh (2002)	Carve-out	1980-1997	2-digit SIC	0.80 %	2.34 %	1.54 %
Hulburt et al. (2002)	Carve-out	1981-1994	4-digit SIC	0.98 %	2.10 %	1.12 %

Table 2 shows the results of previous papers studying the effect of related vs. unrelated divestitures on parent abnormal returns. Most of these papers use the 2-digit SIC code to identify whether a spin-off is from related or unrelated industry. All papers except two (Allen and McConnell (1998) and Boone (2000)) report a positive difference between unrelated abnormal return and related abnormal return, suggesting that increasing focus creates value in spin-offs.

Expropriation of wealth from bondholders to stockholders is not supported in any of the previous papers. Therefore it seems that the value created to shareholders through spin-offs is real and not merely transferred from the bondholders of the company.

Improvement in efficiency and operating performance seem to contribute to the value creation from spin-offs. Hulburt et al. (2002) studied the stock reactions of rival companies to announcements of equity carve-outs, and found that rival's stocks experience negative abnormal returns indicating an improvement in the operating efficiency of the spin-off parent. They tested the efficiency and information hypotheses simultaneously. If the source of value creation was information asymmetry, they claimed that the rival stocks should react positively to an undervalued parent company's announcement of a spin-off. Since the evidence was the opposite, they concluded that value is created through improved efficiency. John and Ofek (1995) and Desai and Jain (1999) also report improved operating performance of the parent company. Efficiency reasons as sources of value creation were also highlighted by Vijh (2002), who distinguished between the information and efficiency explanations. In addition, Hite and Owers (1983) argued that both the parent company and spun-off subsidiary can separately form more efficient contracts, based on their comparative advantages, and hence improve operating efficiency.

Although many papers have supported improved efficiency as a value driver in spin-offs, there are several studies that place more emphasis on the information asymmetry related

explanations. Habib et al. (1997) modelled an information-based explanation for spin-offs. They argue that as spin-offs create new companies and more securities are available, the price system becomes more informative. As a result, they claim, the investment decisions of managers improve and the information asymmetry between managers and investors declines. This in turn increases the value of individual securities. Following this logic, a spin-off announcement leads to positive abnormal returns.

Another paper in favour of the information explanation is Krishnawami and Subramaniam (1999). They regress the abnormal returns following spin-off announcements against relative size, information asymmetry, industry relatedness and taxes. Although the relative size and focus are reported to relate positively to abnormal returns, the authors still place the most weight on the reduction of information asymmetry as a value driver. Another study supporting the information asymmetry hypothesis is that of Johnson et al. (1996). They studied the correlation between announcement returns and operating performance changes following spin-offs and report insignificant results. They conclude that since efficiency does not improve but value is created, the explanation must come from the reduction in information asymmetry.

2.2.4. Divestiture type choice

This section presents empirical evidence on the determinants of the divestiture type chosen, namely between asset sales, equity carve-outs and spin-offs. Nanda (1991), Slovin et al. (1995), Powers (2001) and Rejman (2004) evaluated in their papers the choice of divestiture method between equity carve-out, spin-off and asset sale. I will now go through the findings of these papers.

Nanda (1991) presented an asymmetric information hypothesis, which predicts that equity carve-outs are undertaken by companies with an undervalued parent and an overvalued subsidiary. She modelled the choice of divestiture type without using any empirical data and concluded that firms resorting to equity carve-outs are, on average, undervalued by the market. Her results thus support information hypothesis and rejects efficiency hypotheses.

Slovin et al. (1995) compared the information conveyed by the different divestiture methods by looking at the share price reactions of rivals to carve-out, spin-off and asset sale announcements. They found a negative rival stock price reaction to equity carve-outs, positive to spin-offs and insignificant to asset sales, and they concluded that a carve-out is chosen when the managers believe outside investors are likely to price the new shares higher than managers' perceived value. In other words, information explanation was supported; managers have an information advantage over investors and issue subsidiary equity, i.e. carve out, only when it is overvalued. These findings contradict the efficiency explanations of spin-off value creation, because a positive reaction of rivals to spin-offs conveys positive information about the industry. The spun off entity is undervalued and hence the whole industry is undervalued. Consequently, if managers believe the divested unit is undervalued, they are reluctant to issue equity and go with a spin-off instead, a conclusion consistent with Nanda's (1991) model.

Powers (2001) studied a sample of 187 spin-offs, 204 sell-offs and 181 equity carve-outs to quantify the determinants of the method chosen. He used the pre-divestiture data for parent and subsidiary and found out that the primary factors affecting the choice of method were parent's need for external capital and the quality of the subsidiary. Spin-offs were associated with better pre-divestiture performance and smaller leverage than asset sales or equity carve-outs. Carved-out subsidiaries had better profitability and growth than spin-offs, which in turn were more profitable and had better growth than asset sales. The subsidiary's relative profitability to its parent was also better in carve-outs than in asset sales or spin-offs. These results are consistent with those of Slovin et al. (1995).

As mentioned in the introduction to this thesis, Rejman (2004) studied the divestiture method choice in his master's thesis. He concluded that bigger, less leveraged and more profitable parents tend to carve out instead of spin off. Although he did not report evidence regarding under- or overvaluation of the subsidiary contributing to the method choice, his results are in line with the previous studies.

These findings rather consistently support the information hypothesis in selecting an appropriate divestiture method, but still the sources of wealth gains from a particular divestment, in this case a spin-off, remain unclear.

3. Hypotheses

This section presents the hypotheses employed in the thesis and the theoretical reasoning behind them.

***H1:** Spin-off announcements result in positive abnormal returns to the shareholders of the parent company.*

The first hypothesis is based on the various value creation hypotheses, such as incentive alignment hypothesis, corporate focus hypothesis and information hypothesis. Incentive alignment hypothesis states that when a subsidiary starts trading separately, its managers' can be compensated based on stock price performance and thus shareholders' and managers' incentives are better aligned. Corporate focus hypothesis suggests that increased corporate focus allow managers to concentrate on the core operations because their attention is not diverted across many divisions that operate in very different industries. This in turn translates into more efficient operations and better performance, which create value. Information hypothesis on the other hand, is based on the logic that spin-off decision presents new information to the market, makes the valuation of the separate firms more transparent and hence reduces the asymmetry of information between managers and investors. In addition to these theoretical explanations, the empirical results of the previous literature are almost unanimous in this respect.

***H2:** Industry adjusted, long run abnormal stock returns following spin-offs are insignificantly different from zero.*

The second hypothesis is derived from the well-known Efficient Market Hypothesis, according to which the initial stock price reaction should capture the value effect of a spin-off announcement entirely. This hypothesis is also supported by the results of Veld and Veld-Merkoulova (2004) with European data. Moreover, the fact that some U.S. studies have presented opposite results makes this an interesting hypothesis to test.

H3: Operating performance of the parent company improves following a spin-off.

This hypothesis is based on the various efficiency hypotheses that are also supported by empirical findings in the previous studies from the U.S. H3 is also closely connected to H1; H1 states that value is created through spin-offs and H3 states that one source of this value creation is improving operating performance. Furthermore, it is feasible to assume that the spun-off assets are the ones that hinder the efficiency of the entire company. Thus, when these assets are removed and focus is diverted to those assets that are more suitable for the company as a whole, the efficiency of these remaining assets should improve. Following this logic, spin-offs should lead to more efficient operations that in turn explain the value created in the process. This relationship between value creation and improved efficiency is in fact the next hypothesis.

H4: The abnormal return at announcement is positively related to the change in the operating performance of the parent company.

The fourth hypothesis is again based on the Efficient Market Hypothesis. The logic here is that the improved operating performance is anticipated immediately and reflected in the stock price. Conversely, if the markets do not see any potential to improve operating performance, they will not value the stock higher at the announcement. There's also a clear link between operating performance and value in general; companies that make profit are valued higher than those that do not. Therefore this logic should work on spin-offs as well. Again, differing results from some studies from the U.S. make this more interesting a hypothesis to test.

H5: Post spin-off takeover activity has power in explaining the long-term abnormal stock returns.

The fifth hypothesis is derived from empirical results as well as logical evaluation of the effect of takeovers on seller's returns and consequently long term returns. Cusatis et al. (1993) reported this effect in the U.S. Furthermore, sellers in takeovers tend to experience significant positive abnormal returns which naturally improves the performance of the spun off companies that are eventually taken over. Assuming that the sample spun-off companies that are taken over are not initially undervalued by the amount of the average acquisition premium, their long run stock performance should exceed that of the rest of the market.

4. Data

4.1. Retrieval process

The data used in this study was collected from several sources. The spin-off events and company details such as SIC codes, tickers and SEDOL and CUSIP codes were taken from SDC Platinum, financial statement information from Thomson OneBanker Worldscope database and the stock price information from Datastream. All this data was collected for the parents, spun-off subsidiaries and benchmarks. The quotes used for benchmark stock market indices were the total return indices for individual countries.

4.2. Sample characteristics

The sample consists of European spin-offs over the period of January the 1st 1994 to June the 30th 2006. A European spin-off is defined as a spin-off in which a European parent company spins off a subsidiary, which can be European or non-European. All European countries are taken in the sample, with the exception of formerly Socialist East-European countries.

Spin-off events were retrieved from SDC Platinum International Mergers and Acquisitions database. The initial sample consisted of 330 spin-offs. Table 3 reports the annual and geographical distribution of the spin-offs in the sample. The row with the total number of observations shows that with 30%, the UK is rather heavily represented in the total sample (98 observations out of 330 come from the UK). Sweden with 15% and Germany and Italy with 9% representation each follow. The rest of the observations are distributed quite evenly between the other countries. Another point worth mentioning is the annual distribution of the spin-offs that is presented in Figure 1. Since mid-1990s the amount of spin-offs increased steadily and clearly peaked in 2000. After that the frequency of spin-offs declined until it again increased slightly towards the mid-2000s. We have to note that this figure is not complete, since in 2006 only those spin-offs that were announced before June 30th were involved.

In order to explain the annual variation in the amount of spin-offs we can look at the stock market performance over the same period. Figure 2 below depicts the development of a European stock index, FTSE EUR300, over 1994-2006. The shapes of the two diagrams are very similar, and it seems that spin-off activity and stock market performance are indeed positively correlated.

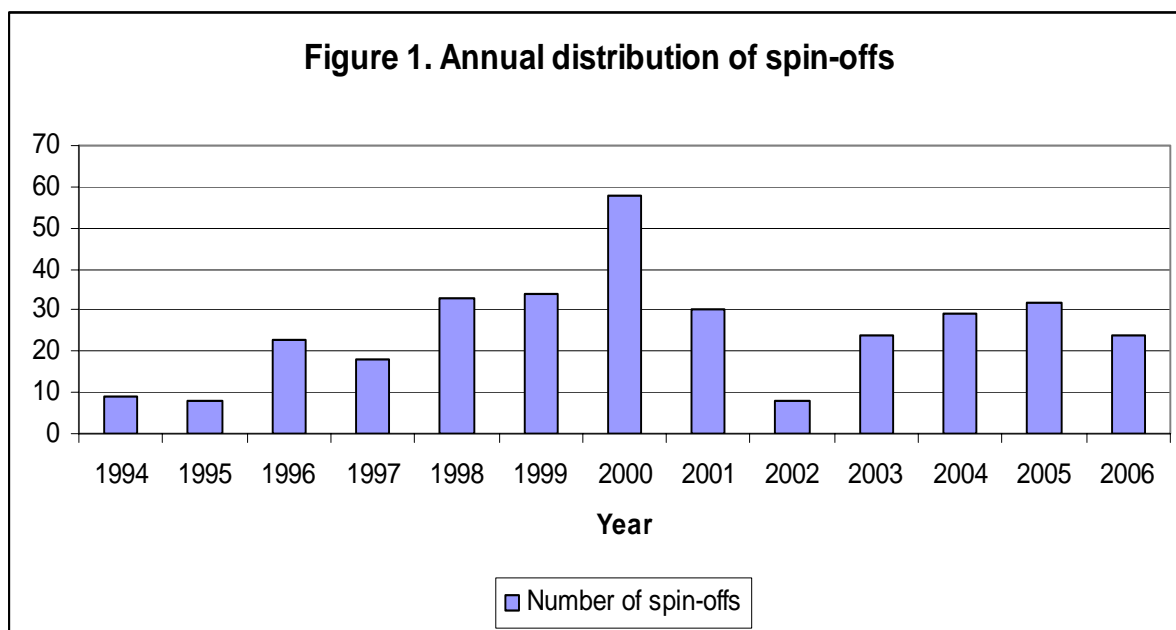


Figure 1. Annual distribution of spin-offs

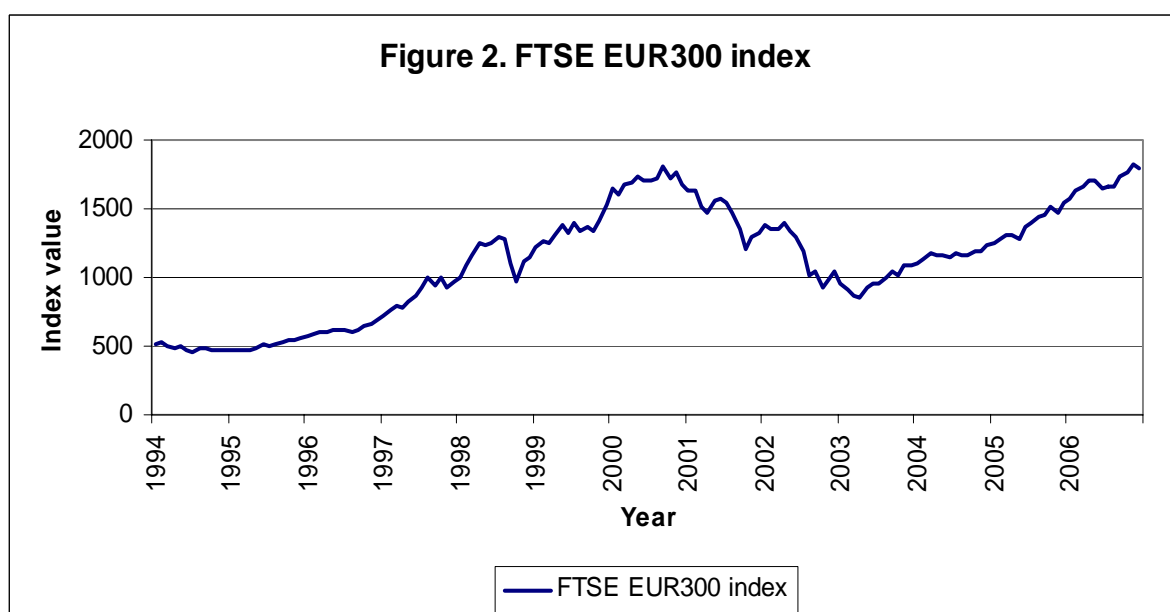


Figure 2. FTSE EUR300 index

A number of spin-offs had to be eliminated from the original sample for various reasons. The first reason is that a parent sometimes announced two or more spin-offs simultaneously, and since it is impossible to distinguish between the impacts of the different spin-offs on the parent stock price, these double records had to be eliminated. The amount of eliminated spin-offs due to multiple simultaneous announcements was 39. The second reason is that sometimes a single spin-off was carried out by multiple parents. Again, the impact of a spin-off on parent stock price would be impossible to detect in such a case and altogether three spin-offs had to be eliminated due to this. The third reason is that there was not enough information available on the parent company. For instance the spin-off of Barco Communications Systems that was announced in September 2000 showed the Kingdom of Belgium as the parent. Since it is not sure which the parent company really was, these spin-offs were also eliminated. The amount of spin-offs taken out from the sample due to lack of information on the parent was 14. The fourth reason for elimination is that no stock price information was available in Datastream for the required period around the spin-off. Number of spin-offs eliminated because of this was 110. The final sample consists of 164 observations. Out of these 164 spin-offs, 120 were completed, 27 still pending, nine withdrawn and eight had an unknown status at the time this study was done (October 2008).

Table 3. Sample observations by announcement year and parent home country

Year	UK	GER	FRA	ITA	SWE	NOR	DEN	FIN	NL	BL	CH	SP	AUS	IRE	GRE	CZ	LUX	POR	HUN	Total
1994	2			1	1	1		1	1			1	1							9
1995	4	1		1		1					1									8
1996	8		2	1	9						2					1				23
1997	11	1		1	3						1			1						18
1998	11	4	1	1	10	2			3		1									33
1999	6	3		5	4	3	2	2	4	2	2			1						34
2000	15	10	2	6	5	3		6		1	4	1	1		4					58
2001	10		1	3	6	4				2	2	1		1						30
2002	5			1				1	1											8
2003	5	2	1	5	1	2		1	3	1		1			1			1		24
2004	8	2	1	2	4	4		3		2	1			1				1		29
2005	5	5	2	3	4	2		2	1	1	2		1	1	2		1			32
2006	8	3	2	1	4	1				1	2			1					1	24
Total number of observations	98	31	12	31	51	23	2	16	13	10	18	4	3	6	7	1	1	2	1	330
- multiple announcements	8	2	2	3	5	2	2	5	6						4					39
- spin-off by multiple parents											3									3
- no stock price data available	38	7	6	9	14	11		1	5	3	6	1	2	1	3	1	1	1		110
- parent not known				5	2	1		3		3										14
Total sample	52	22	4	14	30	9	0	7	2	4	9	3	1	5	0	0	0	1	1	164
Completed	47	9	3	8	27	7		5	1	2	5	1	1	3				1		120

Table 3 shows the distribution of European companies that announced a spin-off between January 1st 1994 and June 30th 2006. The observations are presented by announcement year and home country of the parent company. The spin-off announcements and dates are identified from the SDC Platinum International Mergers and Acquisitions Database. Spin-offs are eliminated for the following reasons: 1) double records of parent companies that announce a spin-off of two or more subsidiaries on the same date, 2) spin-offs by multiple parents, 3) lack of information on the identity of the parent and 4) no stock price data available in Datastream. Countries are denoted as follows: UK for United Kingdom, GER for Germany, FRA for France, ITA for Italy, SWE for Sweden, NOR for Norway, DEN for Denmark, FIN for Finland, NL for Netherlands, BL for Belgium, CH for Switzerland, SP for Spain, AUS for Austria, IRE for the Republic of Ireland, GRE for Greece, CZ for the Czech Republic, LUX for Luxembourg, POR for Portugal and HUN for Hungary.

With a 32% weight, the UK is still heavily represented in the final sample after the eliminations, as are Sweden (18%), Germany (13%) and Italy (9%), so the geographical distribution of the sample remained close to what it was in the original sample. After the elimination, there were no observations from Denmark, Greece, Czech Republic or Luxembourg, and thus only 15 countries remained represented in the sample.

Table 4 below presents the mean and median market values of parents and spin-off subsidiaries, their standard deviations and average relative size. As shown by the vast difference in the mean and median values, the sample is characterized by great variability in the sizes of parents. The mean market value of parents is over €10 billion while the median is only €1.6 billion. The mean relative size of the spin-off to the parent is 16.57% and the median 27.54%, so on average, the parents in the sample are much larger than the subsidiaries they spin off.

Table 4. Parent and subsidiary average market values

	Parent market value	Spin-off market value	Relative size
Mean	10 132	1 679	16.57 %
Median	1 636	449	27.45 %
Standard deviation	21 459	3 202	

Table 4 presents the average market values in millions of euros for the parents and spin-offs as well as the average relative size of the spin-off to parent. Both mean and median measures and standard deviations are presented. The differences between means and medians are large, suggesting that there are few very large parents in the sample. Spin-offs are relatively small compared to parents, depending on the measure the average relative size of the spin-off ranges between 16.57 and 27.45 percent of the parent market value.

Table 5 on the next page shows the industrial distribution of the sample. Altogether 36 industries, classified by the 2-digit SIC code, are represented in the sample. The distribution is relatively even across industries. However, four industries clearly stand out with a relatively large representation. They are business services, chemical and allied products, investment and commodity firms, dealers, exchanges and real estate; mortgage bankers and brokers. These four industries make up more than 40% of the entire sample of 164 observations.

Table 5. Sample distribution by industry

Industry	Observations	Industry	Observations
Amusement and Recreation Services	2	Miscellaneous Manufacturing	4
Business Services	24	Miscellaneous Retail Trade	2
Chemicals and Allied Products	14	Oil and Gas; Petroleum Refining	4
Commercial Banks, Bank Holding Companies	2	Paper and Allied Products	2
Construction Firms	2	Printing, Publishing, and Allied Services	7
Credit Institutions	3	Real Estate; Mortgage Bankers and Brokers	15
Electric, Gas, and Water Distribution	7	Retail Trade-Eating and Drinking Places	1
Electronic and Electrical Equipment	4	Retail Trade-General Merchandise and Apparel	2
Fabricated Textile Products	1	Retail Trade-Home Furnishings	2
Food and Kindred Products	3	Rubber and Miscellaneous Plastic Products	3
Health Services	1	Stone, Clay, Glass, and Concrete Products	1
Hotels and Casinos	1	Telecommunications	4
Insurance	2	Textile and Apparel Products	1
Investment & Commodity Firms,Dealers,Exchanges	14	Transportation and Shipping (except air)	7
Machinery	8	Transportation Equipment	5
Measuring, Medical, Photo Equipment; Clocks	6	Wholesale Trade-Durable Goods	3
Metal and Metal Products	2	Wholesale Trade-Nondurable Goods	2
Mining	2	Wood Products, Furniture, and Fixtures	1
Total		164	

Table 5 presents the distribution of spin-off announcement by parent industry. Industries are classified according to 2-digit SIC codes. Altogether 36 industries are represented in the sample. As seen from the table, the distribution is relatively even between the industries, with the exception of four industries that clearly stand out. They are business services, chemical and allied products, investment and commodity firms, dealers, exchanges and real estate; mortgage bankers and brokers. These four industries make up more than 40% of the entire sample of 164 observations.

5. Methodology

This section presents the methodology employed in the thesis. Event study method is used to calculate the announcement effects, benchmark index approach to find out the long-run abnormal returns and industry-adjusted changes in return on assets to determine changes in operational efficiency. An OLS regression model is used to find the determinants of cumulative abnormal returns found from the event study.

5.1. The event study method

The announcement effects are calculated using a basic event study method presented among others in Brown and Warner (1985). They present three approaches to calculating abnormal returns in an event study; mean adjusted return, market adjusted return and the OLS market model. I employ the OLS market model, which seems to be the most commonly used approach in event studies in the financial literature.

In the market model, the first step is to define a normal return for each of the companies in the sample. A normal return is what is expected if no event took place, and is estimated over a so called estimation period, a “clean” period preceding the spin-off announcement. The estimation is done using the ordinary least squares (OLS) regression method over this estimation period, and is formulated as:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}, \quad (1)$$

where $R_{i,t}$ is the expected return on day t on company i 's common stock. α_i and β_i are the OLS estimates for the market model parameters and $R_{m,t}$ is the logarithmic return on the Datastream total return index of the company's home market. $\varepsilon_{i,t}$ is a residual term with an expected value of zero. Logarithmic returns are used, since it is assumed that stock returns are lognormally distributed.

The spin-off announcement date from SDC is used as the event date, day 0, for each event. Stock price data is collected over the period $(-220, +1)$ around the event date. The estimation period used is $(-220, -21)$ and the event window used is $(-1, +1)$ for the announcement effects. The methodology to calculate the long run abnormal returns is explained later in section 5.3.

Now, for each company and each day in the event window the abnormal return is calculated using the following equation:

$$AR_{i,t} = r_{i,t} - R_{i,t} = r_{i,t} - \alpha_i - \beta_i R_{m,t}, \quad (2)$$

where $r_{i,t}$ is the actual return on day t on the company i 's stock.

For each day in the event window $(-1, +1)$, an average abnormal return is calculated by averaging across N companies in the sample. The reasoning behind this is that individual stock returns are noisy, but this noise tends to cancel out when averaging across a large number of companies. Less noise naturally facilitates distinguishing the isolated impact of the event, in this case a spin-off announcement, on returns. The average abnormal return for day t is generated from the following equation:

$$\overline{AR}_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t}, \quad (3)$$

Finally, to capture the total impact of an event on returns, cumulative average abnormal return (CAR) is calculated for the sample. This is done by cumulating the average abnormal returns over the event window:

$$CAR = \sum_{t=-1}^{+1} \overline{AR}_t \quad (4)$$

The t-test is used to define whether the cumulative abnormal returns are statistically different from zero. The testable null hypothesis is therefore that the abnormal return for each day over the event window is zero. Assuming independently and identically distributed abnormal

returns, the t-statistic for average abnormal return is calculated as follows (Brown and Warner, 1985):

$$t(N-1) \sim \frac{\overline{AR}_t}{S(AR)}, \quad (5)$$

where $(N - 1)$ defines the degrees of freedom and $S(\overline{AR})$ is the sample standard error of the mean of stock returns during the estimation period.

The t-statistic for the cumulative abnormal return is the following:

$$t(N-1) \sim \frac{CAR_{-1,+1}}{S(AR)\sqrt{3}}, \quad (6)$$

where $\sqrt{3}$ is a factor used in scaling the daily standard error for the event period $(-1,+1)$ that is three days long in my study.

5.2. Regression model

A multivariate ordinary least squares regression model is used to find out the sources of the cumulative abnormal returns. CAR over the event window $(-1,+1)$ is taken as the dependent variable and the independent variables are relative size, related industry dummy, geographical focus dummy and the change in return on assets over a four-year period around the spin-off. The regression equation is:

$$CAR = a + b_1 RELATIVESIZE + b_2 RELATEDINDUSTRY + b_3 GEOFOCUS + b_4 ROAINCREASE + e \quad (7)$$

where $RELATIVESIZE$ is the market capitalization of the spun off subsidiary over the market capitalization of the parent at the time of the announcement,

RELATEDINDUSTRY is a dummy that gets a value 1 if the spun off subsidiary is from a different industry than the parent and 0 otherwise,

GEOFOCUS is a dummy that gets a value 1 if the spun off subsidiary is from a different country than the parent and 0 otherwise, and

ROAINCREASE is the increase in the return on assets over two years before the spin-off to two years after it and acts as a proxy for improvement in the operative efficiency. This variable is only used in the sample where I study the completed spin-offs.

In addition to these variables, the model also contains year dummies as control variables for the first 12 years in the sample period and dummies for the most represented areas; Scandinavia, Germany and the UK.

In order to facilitate the analysis and interpretation of the regression results, I also run univariate regressions for each of the independent variables and check for possible multicollinearity between different independent variables that might distort the results. The independent variables will also change, depending on which sample is tested. For instance, the change in ROA can only be used in the regression equation testing the sample of completed spin-offs.

5.3. Long run abnormal returns

Calculating long run abnormal returns poses some methodological difficulties. One commonly accepted method is the matching firm approach of Barber and Lyon (1997), also used by Veld and Veld-Merkoulova (2004). The criteria for selecting the matching firm are usually size, industry and market-to-book ratio. However, as the sample in this thesis covers various European markets, finding appropriate matching firms for each company from its own market is difficult and sometimes such a firm does not even exist. Therefore, I employ another approach, presented by Desai and Jain (1999), where I benchmark the abnormal

returns against the FTSE EUR1ST 300E index that covers 300 large European companies. According to Desai and Jain (1999), the matching firm approach and index benchmark approach provide very similar results, and therefore this method should be feasible for my study. The long run returns are calculated as a weighted average of the abnormal returns of the parent company and the spun-off subsidiary. The weights used are the equity values of the parent and subsidiary at the end of the month of the announcement date. This method entirely captures the long run value effect of holding the stock of the parent company through the reorganization process and over the entire calculation period.

There is a discussion in the financial literature whether equal-weighted or value-weighted returns should be used over the sample. Loughran and Ritter (2000) argue that equal-weighted returns are more relevant from the point of view of an investor who wants to predict the abnormal returns associated with a random event, in this case a spin-off. Fama (1998), on the other hand, argues that value-weighted returns should be studied, because they more accurately capture the total wealth effects that are experienced by investors in the market. This point is illustrated in Brav et al. (2000). They present a hypothetical example where the sample consists of 1000 firms, 999 of which have a \$ 1 million market capitalization and one firm that has a \$ 1001 million market capitalization. They then present a scenario where the 999 small firms all have underperformed by an equal percentage of 50% while the large firm has overperformed by 50%. Here it can be seen that an equal-weighted measure will indicate a severe mispricing (-50%), while a value-weighted measure will lead to the conclusion that the sample performance is virtually zero. From the viewpoint of my study, I prefer the analysis of equal-weighted returns. The reason for this is that I want to test whether a random spin-off will be associated with long run superior performance. Now I will explain how the equal-weighted abnormal returns used in the study are calculated.

The abnormal returns are calculated from monthly stock prices, and then a measure called average holding period abnormal return (AHAR) is determined for several periods. The returns over a four-year period around the month of the spin-off announcement are used. The equation for calculating the average holding period abnormal return for a certain period is:

$$AHAR_t = \frac{\sum_{t=1}^T AR_t}{T}, \quad (8)$$

where T is the number of observations during that period.

The statistical significance of the average holding period abnormal return ($AHAR_T$) for any given holding period T (for example, 12 months) is determined using the t -statistic which is computed as:

$$t(N-1) = \frac{AHAR_T}{S(AHAR_T)}, \quad (9)$$

where $S(AHAR_T)$ is the standard error of $AHAR_T$.

5.4. Change in operating performance

Here I follow the methodology of Daley et al. (1997) and Healy et al. (1992). The idea is to compare the changes in the operating performance measures of the portfolio of parent and subsidiary with those of the pre-spin-off figures of the parent company and benchmark them to the industry median measures. The calculated abnormal value is the change in the specific measure of the firm performance minus the change in the industry median of this measure. Doing this controls for the industry specific effects and should only show the company specific changes due to the spin-off. As pointed out in the previous section, finding individual industry peers for European companies is tricky and hence instead of finding individual peer companies for analysis, I use industry median figures retrieved from Thomson One Banker. Industries are defined here based on the 4-digit SIC codes.

More precisely, I examine the accounting performance for the sample firms in each of the five years centred around the announcement year, i.e. years -2,+2 relative to the spin-off. The performance measure employed here is the return on assets (ROA), defined as the ratio of operating earnings to total assets. ROA is suitable for the purpose of my study for several reasons. First, taking operating earnings isolates interest and tax effects as well as one-time charges, thus resulting in the change in the operational efficiency alone. Second, ROA is

made up of profit margin and asset turnover and captures efficiency improvements in both these measures. Since it is not known in advance, whether the possible improvement in operational efficiency is reflected in profit margin or asset turnover, or both, using ROA is convenient since it captures both.

The abnormal changes in ROA are calculated using three steps (Daley et al. (1997)). First, the adjusted return on assets for firm j in time t is calculated as:

$$AROA_{j,t} = ROA_{j,t} - IROA_{j,t}, \quad (10)$$

where $ROA_{j,t}$ is the actual return on assets for firm j in time t and $IROA_{j,t}$ is the median ROA of the industry in time t . This measure is called the industry adjusted ROA. Next, the change in the industry adjusted ROA is calculated as the difference between post-spin-off AROA and pre-spin-off AROA for each spin-off company:

$$\Delta AROA_j = AROA_{j,post} - AROA_{j,pre} \quad (11)$$

I calculate a single test value for each spin-off company for the change in adjusted ROA, or $\Delta AROA$. This is done by comparing the average AROA over two years before the spin-off to the average AROA over two years after the spin-off. In addition, I calculate the change in AROA for each year over the five-year period (-2,+2 years around the spin-off).

The measure used to detect abnormal operating performance in the sample is the median change in the adjusted return on assets, and is calculated as:

$$\overline{\Delta AROA} = median(\Delta AROA_j) \quad (12)$$

Median, rather than mean, is used because it is not affected by extremes and is thus more suitable a measure for detecting abnormal operating performance in the sample. However, in order to check the robustness of the results, I report the mean values together with the median values.

Again, the t-statistic to test for statistical significance is:

$$t(N-1) = \frac{\overline{\Delta AROA}}{S(\overline{\Delta AROA})}, \quad (13)$$

where $S(\overline{\Delta AROA})$ is the standard error of the change in adjusted returns on assets.

6. Empirical results

In this section I present the empirical results of the thesis. First I will show the announcement effects on the shareholders of the parent company caused by spin-offs. Then I will present the results regarding the long run abnormal returns over a four-year period around the spin-off announcement month and finally go over the sources of these abnormal returns, for both the announcement effects and the long run abnormal returns. Section 6.2. presents the results regarding the increase in the operating performance of the business entity over five years around the spin-off announcement. Finally I conclude this section with an interpretation part, where I compare the obtained results with the hypotheses presented in section 3 and with the results from previous studies presented in section 2.

6.1. Stock market reactions

6.1.1. Announcement effects

This section presents the cumulative abnormal returns to parent shareholders following a spin-off announcement. The results were obtained by conducting an event study with market model approach and an event window of $(-1,+1)$ and an estimation period of $(-220,-21)$. Table 6 below shows the results for the entire sample as well as for a few selected subgroups; completed spin-offs, spin-offs from a non-related industry and spin-offs from a related industry as well as results for four of the most represented countries, the UK, Germany, Sweden and Italy. The first column shows the sample in question, the second column shows the number of observations in that sample, the third column shows the average cumulative abnormal return over the sample, the fourth column shows the t-stat of the CAR and the last column shows the statistical significance of the result; one asterisk meaning significance at the 10% level, two asterisks 5% level and three asterisks 1% level, respectively.

Table 6. Announcement effects following spin-offs

Sample	Number of observations	CAR	t-stat	Significance
All	164	1.83 %	6.6	***
<i>Sub-samples</i>				
Completed	120	1.92 %	9.3	***
Non-related industry	99	2.38 %	10.5	***
Related industry	65	1.00 %	0.1	
Difference		1.38 %	3.8	***
<i>Selected countries</i>				
UK	52	1.32 %	4.2	***
Germany	22	0.43 %	0.9	***
Sweden	30	2.53 %	6.2	***
Italy	14	3.11 %	5.2	***

Table 6 presents the event study results for the announcement effects of spin-off announcements. The event window used for calculating the cumulative abnormal returns was (-1,+1). The results are presented separately for the entire sample, three different subsamples (completed, non-related industry and related industry) and for four most represented countries, the UK, Germany, Sweden and Italy. The CAR for the entire sample is +1.83% and significant at the 1% level. The CAR for completed sample of +1.92% and for non-related sample of +2.38% are also significant at the 1% level. The only subsample that does not show significant results is the related industry, suggesting that the spin-offs that do not increase industrial focus do not create abnormal returns. The difference between the non-related industry sample and the related industry sample is calculated as well and is 1,38%, significant at 1% level. The results for the UK, Germany, Sweden and Italy are all also positive and significant, and do not differ substantially from one another. CAR for the UK sample is +2.83%, for Germany +2.10%, for Sweden +1.93% and for Italy +1.64%, all statistically significant at 1% level. The statistical significance is represented using asterisks in the last column; * means significance at 10% level, ** 5% level and *** 1% level, respectively.

The first row of table 6 shows that the cumulative abnormal return for the parent shareholders is a positive +1.83% in the entire sample of 164 spin-offs. The t-statistic is 6.6 meaning that the result is statistically significant at the 1% level. Thus, European spin-offs between 1994 and 2006 increase the wealth of parent shareholders and based on my sample the amount of this wealth creation is +1.83% on average. The result is consistent with previous studies that also conclude that spin-offs create value for parent shareholders.

The result is similar also for the subsample of completed spin-offs. The cumulative abnormal return is +1.92%, also significant at the 1% level. The two remaining subsamples, non-related and related industries, show the effect of increased industry focus on the value creation from spin-offs. The sample labelled non-related industry consists of those companies where the spun-off subsidiary is from the different industry than the parent,

resulting in increased industrial focus. This sample shows an average cumulative abnormal return of +2.38%, significant at the 1% level. The sample of related industry spin-offs also provides positive CARs of 1.00%. This result, however, is not statistically significant at conventional levels. I also checked the statistical significance of the difference of these two subsamples. With a t-statistic of 3,8 the difference is statistically significant at the 1% level. Based on these two results it can be concluded that spin-offs resulting in industrial focus create value for parent shareholders whereas spin-offs that do not increase industrial focus do not.

The results are also consistent over the selected countries. The average cumulative abnormal return for the UK spin-offs is +2.83%, for German spin-offs +2.10%, for Swedish spin-offs +1.93% and for Italian spin-offs +1.64%, all statistically significant at the 1% level. These results suggest that European spin-offs create value to parent shareholders regardless of the parent country.

6.1.2. Long run abnormal returns

Long run abnormal returns following spin-offs were measured for the portfolio consisting of the parent and subsidiary shares that were weighted by their market values at the end of the month of the announcement. The monthly returns were then benchmarked against the FTSE EUR1ST 300 equity index and the average holding period abnormal return was calculated for selected periods around the announcement. Table 7 below presents the results. The first column shows the selected periods, the second column the average holding period abnormal return and the t-statistic is shown next to it. Both median and mean results are presented in the table.

The median results for average holding period abnormal returns are negative for all the selected periods around the announcement, except the one from 24 months before announcement to 12 months before the announcement. However, none of these returns are statistically significant. The mean results put more emphasis on the extreme values and they do show statistically significant results. The mean holding period abnormal return from announcement month (EX) to 12 months after announcement is a negative 18.78%. The t-statistic is -2.6 meaning that the result is statistically significant at the 1% level. The results

for the period from announcement to 24 months after announcement are very similar. The average holding period abnormal return over that period is a negative 24.75%, also significant at 1% level. Also the entire period of 24 months before the announcement to 24 months after it provide similar results. The mean holding period abnormal return is a negative 22.58% with a t-statistic of -2.1, again significant at the 1% level.

Since the results between median and mean results differ so strongly, it can be concluded that the mean results are driven by extreme negative observations. When median results are used, it can be concluded that the long run stock performance does not improve after a spin-off. If anything, it seems to worsen. However, the median observations do not provide statistical significance to these results.

Table 7. Long run abnormal performance

Period	Median results		Period	Mean results	
	AHAR	t-stat		AHAR	t-stat
EX -24 to EX -12	0.55 %	0.1	EX -24 to EX -12	-2.85 %	-0.6
EX -12 to EX	-4.52 %	-0.8	EX -12 to EX	2.23 %	0.4
EX to EX +12	-5.33 %	-0.7	EX to EX +12	-18.78 %	-2.6 ***
EX +12 to EX +24	-2.02 %	-0.4	EX +12 to EX +24	-3.77 %	-0.7
EX -6 to EX +6	-3.33 %	-0.5	EX -6 to EX +6	-11.30 %	-1.7 *
EX to EX +24	-8.84 %	-0.9	EX to EX +24	-24.75 %	-2.5 ***
EX -24 to EX	-2.55 %	-0.3	EX -24 to EX	0.81 %	0.1
EX -24 to EX +24	-10.94 %	-1.0	EX -24 to EX +24	-22.58 %	-2.1 ***

Table 7 shows the average holding period abnormal returns for the portfolio of parent and spin-off stocks. Equal-weighted returns are used instead of value-weighted returns, because they capture the long-run abnormal return of a random event, spin-off in this case, better than value-weighted returns. The first column shows the period over which the average holding period abnormal return is calculated, next two columns show the AHAR and related t-statistic. Left hand side of the table shows the median results and the right hand side shows the mean results. Both mean and median AHARs are negative in most of the periods. None of the median returns are statistically significant at conventional levels. The mean AHARs for periods EX to 12 months, EX to 24 months and -24 to 24 months are negative and all statistically significant at 1% level.

The development of median long run cumulative abnormal returns is presented in Figure 3 below. The graph is drawn based on median monthly abnormal returns. Although the results are not statistically significant, it can be seen from the graph how the cumulative abnormal return stays near zero towards the announcement and declines quite steadily after it. Therefore it can be concluded that the long run stock performance does not improve

following spin-offs, as documented by several previous studies from the U.S. More interpretation on these results will follow in section 6.3.

Figure 3. Long run cumulative abnormal returns after spin-offs

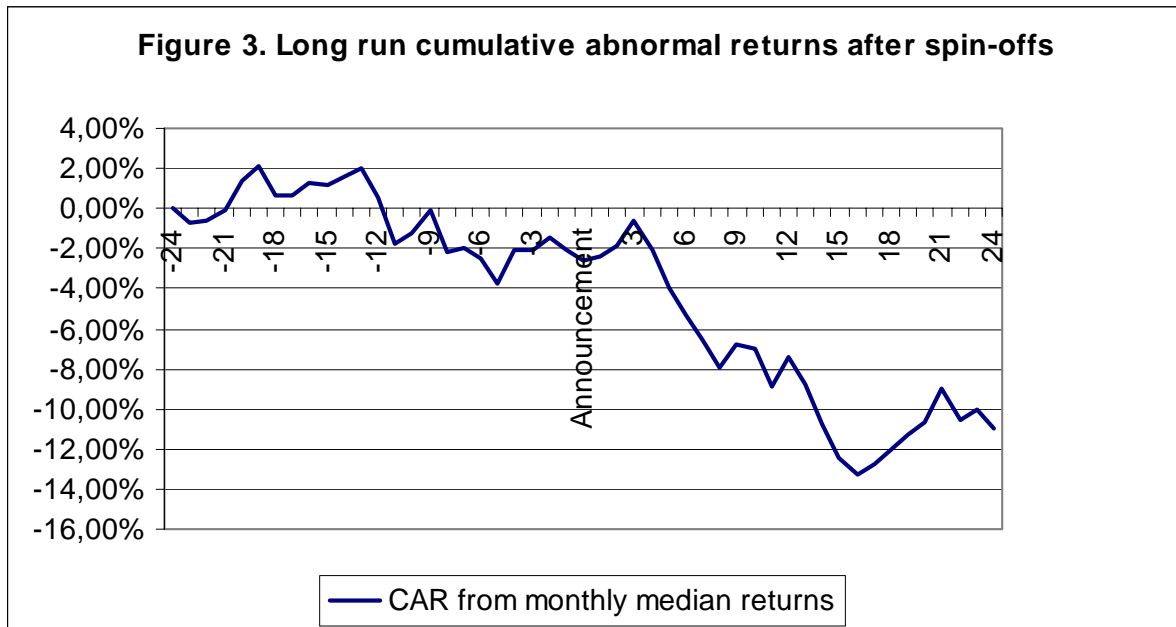


Figure 3 depicts the development of long run cumulative abnormal returns from monthly observations over a four-year period around spin-off announcement. Each monthly abnormal return is calculated as the difference between the raw return on a portfolio of parent and subsidiary, weighted by the market capitalizations at the end of the month of announcement, and the raw return on FTSE EUR1ST 300, a European equity index that covers 300 large European companies.

6.1.2. Sources of abnormal returns

Evidence on the sources of abnormal returns at announcement is derived from the results of the different regression models. This section presents the results of the various regressions explaining the cumulative abnormal returns around spin-off announcement. I also examined the takeover activity during the two-year period following the announcement that can explain the results regarding the long run abnormal returns, because previous U.S. studies have reported that many of the spin-offs were subsequently taken over after spin-offs and that this has explained the positive long run abnormal returns.

Table 8 below shows the regression results for the entire sample of 164 spin-offs. There are four different models in Table 8. There is the multivariate model with industrial focus,

relative size and geographic focus as explanatory variables and also three univariate models where one of these explanatory variables is used in turn in each of the models. The table also shows the number of observations, R square and adjusted R square for each of the models. Year dummies as well as three most represented areas, Scandinavia, Germany and the UK, are used as control variables in each model.

All four models present similar results. The only independent variable capable of explaining the cumulative abnormal returns in the tests is the relative size of the spin-off. This occurs in both the multivariate and univariate models. The t-statistic for relative size in the multivariate model is 2.4 and represents statistical significance at the 5% level and the t-statistic in the univariate model is 2.6, representing statistical significance at the 1% level. Neither industrial focus nor geographical focus can explain cumulative abnormal returns at statistically significant levels in any of the models.

Table 8. Regression of abnormal returns for the entire sample

Independent variable is CAR				
Variable	(1)	(2)	(3)	(4)
Intercept	-0.008 <i>-0.6</i>	-0.002 <i>-0.2</i>	-0.004 <i>-0.4</i>	0.003 <i>0.3</i>
Industrial focus	0.010 <i>0.9</i>		0.014 <i>1.2</i>	
Relative size	0.066 <i>2.4 **</i>	0.069 <i>2.6 ***</i>		
Geographic focus	0.000 <i>0.0</i>			0.000 <i>0.0</i>
Scandinavia	0.011 <i>0.8</i>	0.012 <i>0.8</i>	0.014 <i>1.0</i>	0.016 <i>1.1</i>
Germany	0.024 <i>1.3</i>	0.022 <i>1.2</i>	0.020 <i>1.1</i>	0.017 <i>0.9</i>
The UK	0.014 <i>0.9</i>	0.014 <i>1.0</i>	0.024 <i>1.7 *</i>	0.024 <i>1.7 *</i>
Year dummies	Yes	Yes	Yes	Yes
Number of observations	164	164	164	164
R square	0.06	0.06	0.03	0.02
Adjusted R square	0.03	0.03	0.00	0.00

Table 8 presents the regression results of cumulative abnormal returns for the entire sample of 164 spin-offs. The dependent variable is the cumulative abnormal return and independent variables used are industrial focus, relative size of the spin-off and geographic focus. Year dummies and dummies for most represented areas are used as control variables. The first column shows the variable in question, and the next four columns contain different models. Model (1) is the multivariate model with all independent variables. Models (2) to (4) are univariate models for relative size, industrial focus and geographic focus. The main result drawn from all the models is that the relative size of the spin-off is positively and significantly at 1% level related to cumulative abnormal returns, while all the other explanatory variables fail to show a relationship with any conventional statistical significance levels.

Both multivariate (model 1) and univariate (model 3) models show a slight positive relationship between industrial focus and cumulative abnormal returns, but these results are not statistically significant at conventional levels (t-statistics 0.9 and 1.2). However, as was mentioned in section 6.1.1., when the sample was divided into two subsamples based on whether the spin-off resulted in industrial focus or not, the focus increasing sample provided significant positive CARs while the non-focus increasing sample did not. The difference between the two subsamples was also statistically significant at the 1% level. Therefore, the

evidence on the effect of increasing industry focus on value created through spin-offs is not conclusive.

Increase in geographic focus, defined as a spin-off where parent spins off a subsidiary that is from a different country, shows virtually no relationship with cumulative abnormal returns. This result is naturally not statistically significant as can be observed from the t-statistics of -0.0 in both the multivariate model and the univariate model.

One point worth mentioning about the models is their relatively low explanatory power. The adjusted R square of the multivariate model is only 0.03. On the other hand, this type of result was expected in the sense that also previous literature has shown consistent and significant CARs following spin-offs, but the sources offered have varied across samples, methods and studies. Therefore, financial literature still lacks a well functioning model to explain value creation through spin-offs.

In addition to regressing cumulative abnormal returns of the entire sample, I also ran separate regressions for the completed sample. The sample of completed spin-offs allows introducing the change in operating performance into the model. This would not be sensible in the sample of all spin-offs since if the spin-off is not completed, its effects on the operating performance must be negligible. Furthermore, separate operating performance measures would not be available for spin-offs that have not been completed.

Table 9 presents the regression results for the completed sample. The models are the same as with the sample of all spin-offs, with the exception that now the sample consists of the 120 completed spin-offs and the change in return on assets is introduced as a new independent variable. The results are very similar to those obtained for the entire sample. Relative size of the spin-off is still the only variable that is statistically significantly related to cumulative abnormal returns. The new variable, change in return on assets, is slightly negatively related to abnormal returns, although this relationship is far from being statistically significant at any conventional levels (t-statistic -0.3). The implications of this result, however, are interesting and are discussed in section 6.3. The explanatory power of the model increased slightly with the introduction of change in return on assets as an independent variable. The adjusted R

square of model (1) is 0.05, which is still relatively low indicating that variables other than the ones included here could explain the cumulative abnormal returns.

Table 9. Regression of abnormal returns for the completed sample

Independent variable is CAR					
Variable	(1)	(2)	(3)	(4)	(5)
Intercept	-0.013 <i>-0.4</i>	0.029 <i>1.1</i>	0.004 <i>0.5</i>	0.038 <i>1.5</i>	0.036 <i>1.4</i>
Industrial focus	0.013 <i>1.0</i>	0.018 <i>1.4</i>			
Relative size	0.077 <i>2.8 ***</i>		0.081 <i>3.2 ***</i>		
Geographic focus	0.006 <i>0.3</i>			-0.008 <i>-0.3</i>	
Change in ROA	-0.030 <i>-0.3</i>				-0.077 <i>-0.7</i>
Scandinavia	0.009 <i>0.5</i>	0.010 <i>0.6</i>	0.012 <i>0.6</i>	0.013 <i>0.8</i>	0.013 <i>0.7</i>
Germany	0.013 <i>0.5</i>	0.012 <i>0.6</i>	0.011 <i>0.5</i>	0.014 <i>0.9</i>	0.012 <i>0.8</i>
The UK	0.011 <i>0.6</i>	0.010 <i>0.6</i>	0.019 <i>1.2</i>	0.020 <i>1.3</i>	0.018 <i>0.9</i>
Year dummies	Yes	Yes	Yes	Yes	Yes
Number of observations	120	120	120	120	120
R square	0.08	0.15	0.08	0.14	0.14
Adjusted R square	0.05	0.05	0.07	0.03	0.03

Table 9 presents the regression results for cumulative abnormal returns for the sample of 120 completed spin-offs. The dependent variable is the cumulative abnormal return and independent variables used are industrial focus, relative size of the spin-off, geographic focus and change in industry-adjusted return on assets. Year dummies and dummies for most represented areas are used as control variables. The first column shows the variable in question, and the next four columns contain different models. Model (1) is the multivariate model with all independent variables. Models (2) to (5) are univariate models for industrial focus, relative size, geographic focus and change in industry-adjusted return on assets. The main result drawn from all the models is that the relative size of the spin-off is positively and significantly at 1% level related to cumulative abnormal returns, while all the other explanatory variables fail to show a relationship with any conventional statistical significance levels.

If the independent variables are strongly correlated, i.e. there is multicollinearity between the variables, it is possible that the results and t-statistics can be biased. To test for multicollinearity, I calculated the correlations between each of the independent variables used. The results are presented in table 10. From the results it can be seen that the correlations between any of the variables are very modest, and hence my results and significance levels are not likely to be affected by adverse effects of multicollinearity. Also

the fact that the results were very similar between multivariate and univariate regression models confirms that the results from the multivariate model are not excessively distorted by multicollinearity.

Table 10. Correlation matrix for independent variables

	Relative size	Industry focus	Geofocus	ROA change
Relative size	1	0.159	-0.046	-0.069
Industry focus		1	-0.046	-0.055
Geofocus			1	0.100
ROA change				1

Table 10 presents the correlation matrix for all the independent variables used in the regression models. The results show that there is not excessive multicollinearity between the variables that would distort the results obtained from the multivariate regression models.

Cusatis et al. (1993) reported that subsequent takeover activity of spin-offs significantly increased the long run abnormal returns and that the acquisition premiums paid were in fact the decisive factor in determining the long run abnormal returns. They also reported that takeover activity of spin-offs was strong in the U.S. To check the effect of takeover activity in my European sample I determined the amount of spin-offs or parents in the completed sample that were taken over during the two-year period following the announcement. There were only 13 such observations in my sample. Therefore, it is not sensible to calculate the long run abnormal returns for a sample of only 13 observations. But one conclusion can be drawn; takeover activity following spin-offs was much lower in Europe between 1994 and 2006 than it has been in the U.S. studies. Second, the long run abnormal returns in my sample were much lower than those in the Cusatis et al. (1993) suggesting that it can be the difference in takeover activity between the markets that contribute to the differing results as well. I will provide a more thorough analysis of the results in section 6.3.

6.2. Operating performance changes

This section presents the results on the operating performance changes, measured as the change in the industry adjusted return on assets. The sample consists of 45 completed spin-offs for which data for both earnings from operations and total assets was available in

Thomson OneBanker Worldscope database for the five years around each spin-off. Table 11 below shows the results regarding changes in operating performance. I concentrate my analysis on the median results, since mean results are affected by extreme observations. Both median and mean results are still presented for several periods, with the associated t-statistics and significance levels. The last column titled “-2Y – 2Y” is the main measure used to determine whether operating performance increases through the reorganization process of a spin-off. The measure is calculated as the difference between the average change in return on assets over two years after the spin-off and that over two years before the spin-off. This measure is also used as an explanatory variable in the regression model that explains the cumulative abnormal returns in the sample of completed spin-offs.

As can be seen from Table 11, the mean changes in return on assets are mainly positive. Only one period, the year preceding the spin-off announcement, shows a negative change in the return on assets. However, most of these measures are not statistically significant, including the negative change in return on assets for the period -1Y – 0Y. The changes in return on assets are significant in only two periods out of six. The 2.94% increase in return on assets over the one-year period starting two years before the announcement (t-statistic 1.7) is significant at the 10% level. The mean result for the increase in the two-year average return on assets, shown in the last column in table 11, is an increase of 2.70% and with a t-statistic of 1.7 is also statistically significant at the 10% level.

The median changes in return on assets are also mainly positive. Only the one-year period following the spin-off announcement shows a negative change in return on assets. However, this is not statistically significant and neither are any of the results over the other periods. Therefore it seems that the mean results are driven by extreme positive observations and when the medians are used, there is no statistically significant improvement in operating efficiency caused by spin-offs.

Table 11. Operating performance changes around spin-off year

Year	-3Y-2Y	-2Y-1Y	-1Y-0Y	0Y-1Y	1Y-2Y	-2Y - 2Y
Median	0.32 %	0.21 %	0.27 %	-0.52 %	0.24 %	0.94 %
<i>t-stat</i>	0.2	0.1	0.2	-0.4	0.3	0.6
Mean	1.53 %	2.94 %	-0.49 %	1.41 %	0.62 %	2.70 %
<i>t-stat</i>	0.7	1.7 *	-0.3	1.0	0.7	1.7 *

Table 11 shows the results of the operating performance changes around spin-off events. The sample consisted of 45 completed spin-offs for which data of both earnings from operations and total assets was available in Thomson OneBanker Worldscope database for the years around the spin-off. The measure of performance change is the change in return on assets for each year, adjusted for industry medians. The last column titled “-2Y – 2Y” shows the aggregate change in adjusted ROA and is calculated as the average change in ROA over two years after the spin-off less the average change in ROA over two years before the spin-off. The year of the spin-off is excluded. As can be seen from the last column, both the median and the mean change is positive, however, their statistical significance is weak; the mean change is statistically significant at the 10% level while the median change is not significant at conventional levels.

6.3. Interpretation of the results

In this section I analyse the results on value creation through spin-offs. This section starts by briefly reviewing the main results obtained. Then I will restate the hypotheses introduced in section 3, compare the results to them and see whether each hypothesis gets rejected on statistical grounds or not. I conclude this section by comparing and contrasting my findings with previous literature and by presenting general implications of the results.

Table 12 below presents a summary of results on announcement effects, long run abnormal returns and changes in operating performance. The signs and t-statistics for the regression coefficients are also presented, both for the entire sample and the sample of completed spin-offs. Long run return presented is the cumulative abnormal return over the 24-month period starting from the announcement month. The measure for the change in operating performance is the change in industry-adjusted return on assets that is the difference between the averages of the two-year periods post-spin-off and pre-spin-off.

Table 12. Summary of results

Measure	Result	t-statistic	Significance
Announcement CAR			
<i>Entire sample</i>	1.83 %	6.6	Yes / ***
<i>Completed sample</i>	1.92 %	9.3	Yes / ***
<i>Non-related industry sample</i>	2.38 %	10.5	Yes / ***
<i>Related industry sample</i>	1.00 %	0.1	No
<i>Difference</i>	1.38 %	3.8	Yes / ***
Regression coefficients			
Entire sample			
<i>Relative size</i>	+	2.4	Yes / **
<i>Industry focus</i>	+	0.9	No
<i>Geographic focus</i>	-	0.0	No
Completed sample			
<i>Relative size</i>	+	2.8	Yes / ***
<i>Industry focus</i>	+	1.0	No
<i>Geographic focus</i>	+	0.3	No
<i>Increase in ROA</i>	-	-0.3	No
Long run abnormal return, 0-24mths	-8.84%	-0.9	No
Change in operating performance	0.94 %	0.6	No

Table 12 presents a summary of results from the Thesis. All results in the table are presented and explained in sections 6.1 and 6.2. The first column shows the measure, the second column the result for that measure, either a numeric value or in the case of regression coefficients, direction. The third column shows the t-statistic of the corresponding result, and finally the last column shows the statistical significance. If the result is statistically significant at least at 10% level, then the column shows “Yes”, otherwise “No”. The asterisks after “Yes” show the level of statistical significance; one asterisk means 10% level, two asterisks mean 5% level and three asterisks mean 1% level, respectively.

I will now restate the hypotheses presented in section 3 and refer to Table 12 as I determine whether the results support each hypothesis or not. The first hypothesis is related to the announcement effects of spin-offs and is stated as:

H1: Spin-off announcements result in positive abnormal returns to the shareholders of the parent company.

Cumulative abnormal return over the event window (-1,+1) is a positive 1.83% as can be seen from the first row in Table 12. With a t-statistic of 6.6 the result is statistically significant at the 1% level and thus H1 is not rejected. Based on empirical evidence on European spin-offs, the spin-off announcements result in positive abnormal returns to the shareholders of the parent company.

This result is consistent with most of the previous studies, both in the U.S. and in Europe. Spin-off studies in the U.S. have reported positive and significant announcement effects ranging from 2.8% to 4.5%, depending on the sample used, to the shareholders in the parent company. Similarly, previous European studies have reported positive and significant announcement effects ranging from 0.5% to 3.3% again depending on the sample used. My result falls into this range as well. The magnitude of the effects in the U.S. studies seems to be larger than that in the European studies. However, statistical significance of this difference as well as the reasons behind it are not analysed in this context.

The second hypothesis deals with the long run abnormal returns on the combination of the parent and the spun-off subsidiary. It is stated as:

***H2:** Industry adjusted, long run abnormal stock returns following spin-offs are insignificantly different from zero.*

As can be seen from the penultimate row in Table 12, the median long run abnormal return over the two-year period following a spin-off announcement is a negative 8.84%. However, with a t-statistic of -0.9 this result is not statistically significant at any conventional level. This in turn means that H2 cannot be rejected based on empirical evidence. This result is sensible in the presence of efficient markets. Since the announcement effects are positive and statistically significant while long run abnormal returns are insignificant, it can be concluded that the value effects of spin-offs are reflected in the stock price at announcement and there are no abnormal returns in the subsequent periods. This evidence also supports the efficient market hypothesis.

Veld and Veld-Merkoulova (2004) report similar results for European spin-offs. They also find insignificant long run abnormal returns following spin-off announcements and conclude

that the effects are already captured at announcement. However, results from the U.S. differ quite substantially. Desai and Jain (1999) report long run abnormal returns for focus increasing spin-offs of 25.37% over 3 years after the spin-off, a result that is significant at the 5% level. Cusatis et al. (1993) studied the long run abnormal returns of spin-offs in conjunction with post spin-off takeover activity. They report a long run abnormal return of 20.0% over 24 months and 24.3% over 36 months for the entire sample of 146 spin-offs. Both results are significant at the 10% level. The subsample of spin-offs that were subsequently taken over provides even stronger results. The abnormal return for the 24 month period was 62.3% and for the 36 month period 99.3%, both statistically significant at the 1% level. They conclude that the abnormal long run performance is mainly caused by the post spin-off takeover activity and the related acquisition premium. Veld and Veld-Merkoulova (2004) on the other hand, suggested that the difference between European and U.S. results stem from differences in the efficiencies of the two markets. That is a possibility that cannot be ruled out based on my results. It is also a possibility that is very difficult to verify.

The third hypothesis assumes that operating efficiency increases as a result of a spin-off. It is stated as:

***H3:** Operating performance of the parent company improves following a spin-off.*

The increase in operating performance is stated in the last row of Table 12, and is measured as the change in the industry-adjusted return on assets post spin-off versus pre spin-off. I report an increase in this measure in the amount of 0.94 percentage points. However, as becomes evident from the t-statistic of 0.6, this result is not statistically significant. Therefore, I must conclude that empirical evidence does not support H3 and it gets rejected. Spin-offs in Europe do not result in improved operating performance.

Again, previous studies have found both similar and differing results. The only European study that has also tested this is the Master's Thesis by Vainio (2007). He evaluated the change in return on capital employed and found insignificant results for his sample. On the other hand, studies from the U.S. have reported improved operating performance following

spin-offs. John and Ofek (1995) compared a measure of EBITD-to-sales of divesting parent to that of industry median and reported a statistically significant improvement in operating performance following asset sales. Similar results were reported in Desai and Jain (1999). They reported positive change in the measure of operating cash flow to assets as well as a positive relationship between this measure and the stock market performance at announcement and in the long run. It is worth mentioning at this point that my sample consisted of only 45 observations, which can in part explain the positive but insignificant results. The significance level could have improved with a larger sample.

It still seems that in the U.S. operating performance improves after spin-offs while in Europe it does not. However, it remains unclear why the results differ in this respect. Therefore, future research could be directed towards explaining this difference by taking a sample from both markets and evaluating which variables, if any, cause this difference.

The fourth hypothesis is closely linked to H3, and is stated as:

***H4:** The abnormal return at announcement is positively related to the change in the operating performance of the parent company.*

The regression coefficient of increase in ROA in the model explaining cumulative abnormal returns at announcement is negative, albeit statistically insignificant. Thus change in operating performance does not explain the value created through spin-offs in my sample. The conclusion is similar to Vainio's (2007) who also reports no reliable connection between announcement effects and operating performance. The result is again different with those of the U.S. studies. John and Ofek (1995) reported a positive relationship between stock price reaction at announcement and improvement in operating performance, measured as EBITD-to-sales. Desai and Jain (1999) also conclude that the announcement period abnormal returns are significantly positively associated with the change in operating performance as well as focus. They also find that the change in operating performance is significantly positively associated with the change in focus. In other words, corporate focus is a decisive factor in the value creation process. If we take a look at Table 12 regression results on industrial focus, we see that industrial focus is positively related to announcement effects also in my sample. However, this result is not statistically significant. Therefore, it can be that spin-offs in the

U.S. provide larger announcement effects and better improvement in operating performance because they result in more focused and efficient entities than their European counterparts. This could also be analysed in future research.

The final hypothesis tackles one potential reason behind the differing results found in previous divestiture studies in the U.S. and Europe regarding the long run abnormal stock returns. H5 is stated as:

***H5:** Post spin-off takeover activity has power in explaining the long-term abnormal stock returns.*

Motivated by the suggestion by Cusatis et al. (1993) that subsequent takeover activity is a decisive driver in the long run abnormal return in the U.S., I checked the takeover activity in my European sample. Very few parents or spun-off subsidiaries were taken over after the spin-off, so few (only 13) that separate calculation of long run abnormal performance would not have been feasible. However, this result provides indirect evidence on the difference between the results from the two markets. In the U.S. takeovers are very common following spin-offs, and there are significant long run abnormal returns. In Europe both takeover activity and long run abnormal returns are much lower, at least in my sample period of 1994-2006. Therefore, in addition to the market efficiency explanation causing differing results on long run abnormal returns in the U.S. and in Europe, also the subsequent takeover activity is likely to contribute. Because no reliable test could be conducted, H5 cannot be rejected.

A few results from Table 12 that were not dealt with in the hypotheses provide interesting insights as well. As mentioned in section 2, there were several arguments for and against geographic focus increasing value. As can be seen from Table 12, the effect of geographic focus in the sample of all spin-offs is positive and in the completed sample it is negative. Both coefficients are statistically insignificant. Arguments in favour of geographic focus increasing value can be reduced monitoring and coordination costs through reduced complexity, reversal of a bad decision by manager to diversify globally in order to reduce his/her own risk at the expense of shareholders and the reduction of cross-subsidisation of poorly performing divisions. Arguments in favour of a negative value impact caused by increased geographic focus can be reduced economies of scale in production, signalling of a poor previous decision and the relative disadvantage to competitors who do operate

internationally. It would be interesting to distinguish between these different explanations, but as becomes clear from the nature of them, it is not possible. How could one for instance quantify what is a bad previous decision and when it is reversed?

All in all, since the results regarding the effect of increased geographic focus are inconclusive, we can assume that the strength of the arguments above are roughly of the same magnitude and hence increasing geographic focus does not, on average, affect cumulative abnormal returns at announcement. This result is consistent with Veld and Veld-Merkoulova (2004) who also report a positive but insignificant relationship between geographic focus and announcement effects for the European sample of all firms.

Relative size of the spin-off, defined as the ratio of the market capitalization of subsidiary over the market capitalization of the parent at the announcement, is the only independent variable in my regressions that shows statistically significant explanation power in the cumulative abnormal returns. With a t-statistic of 2.4 for sample of all firms and 2.8 for the completed sample the result is significant at the 5% and 1% levels. Previous studies both in the U.S. and in Europe have reported similar findings. Veld and Veld-Merkoulova (2004) ran five different regression models for abnormal returns and relative size showed positive and significant results, at the 5% level, in each of them. The results obtained from the U.S. studies are very similar. Hite and Owers (1983), Miles and Rosenfeld (1983), Krishnaswami and Subramaniam (1999) and Vijh (2002) all show highly significant size effect in value creation from divestitures.

The relative size effect is quite difficult to explain by any simple theory. Intuitively, if one assumes that spin-offs are results of decisions to detach assets or subsidiaries that do not have a good fit with the core assets and business of the parent company, then logically a removal of a relatively larger proportion of a poor match with the parent should result in more value being created. In other words, if divesting a subsidiary on average creates value, then divesting a larger subsidiary should create more value. And this is exactly what is observed in the empirical evidence. One must recall, however, that the logic does not run backwards. A parent company willing to increase its stock price naturally cannot conclude, based on this result, that it could do so by divesting its biggest subsidiary. Rather, this result can be interpreted in the following way. Assuming that each decision to spin off a subsidiary is

based on economic reasoning, it therefore creates value as the empirical evidence suggests. In this sample of rationally justified spin-offs, the ones that are relatively larger create more value to parent shareholders than the smaller ones, since the relative benefits of the spin-off are larger, on average.

The results regarding the effect of increase in industrial focus on cumulative abnormal returns also reserve a few remarks. If we look at the announcement effects of the industrial focus-increasing sample in Table 12, we observe a positive cumulative abnormal return of 2.38%, statistically significant at the 1% level. The sample including spin-offs from the related industry, i.e. non-focus increasing sample we observe positive but insignificant results. Furthermore, the difference between these two subsamples is statistically significant at the 1% level. From this evidence it seems that corporate focus is a significant value driver in spin-offs. However, looking at the regression coefficient for the industrial focus variable we see that although the direction is positive, this result fails to show any statistical significance. Therefore my evidence suggests that the effect of industrial focus on value created through spin-offs is inconclusive.

Previous studies have reported a much stronger relationship between increase in industrial focus and abnormal returns. Veld and Veld-Merkoulova (2004) find positive and significant cumulative abnormal returns of 2.62% for their total sample, a positive and significant 3.57% for focus increasing sample and a positive but insignificant 0.76% for non-focus increasing sample. The results are very close to what I report. However, they also show that in three of their five regression models increase in industrial focus is a significant determinant of abnormal returns. In two models the significance level is 5% and in one 10%. In two of the models the industrial focus variable fails to show statistically significant relationship with abnormal returns. Thus there is a difference in results obtained from these two studies. The directions are the same, but the strengths of these variables in explaining the value creation vary.

The connection between increase in industrial focus and announcement abnormal returns is even stronger in previous U.S. studies. Krishnaswami and Subramaniam (1999), Daley et al. (1997), Desai and Jain (1999) and Boone (2000) among others report a statistically significant difference between the announcement abnormal returns on focus increasing and

non-focus increasing spin-offs. Similar results have also been reported in papers studying equity carve-outs. In addition to difference in abnormal returns, these studies also show positive and statistically significant regression coefficients for increase in industrial focus. Based on these findings, it seems that focus has more emphasis as a value driver in spin-offs in the U.S. than it does in Europe. Further research is required however, preferably directly comparing the results from both markets over the same time period.

All these results together provide some general implications regarding the value creation from spin-offs in Europe as well as in the U.S. Simultaneously positive and significant abnormal returns at announcement, insignificant long run returns and insignificant changes in industry adjusted operating performance in Europe tell us that value is certainly created through spin-offs. Furthermore, in Europe it seems that these value effects are also immediately reflected in the stock price at the announcement and no further value is created later on. In the U.S. on the other hand, also the long run abnormal returns have been reported to be positive and significant. The same thing goes for the change in operational performance. Therefore, there can be two main explanations for these differences between the results in the two markets. First, either the European capital market is more efficient than its American counterpart, as suggested by Veld and Veld-Merkoulova (2004) when attempting to explain the differences with their results and those from the U.S. studies. Or second, perhaps the American spin-offs somehow result in more efficient operations than European spin-offs, and when the companies later on show better results, this increase in value is transferred in the stock prices gradually over several years following the spin-off announcement. These explanations are quite closely linked. If the second argument were true, then it would mean that investors in the U.S. stock market cannot foresee the improved operating efficiency at announcement and therefore would not bid up the stock prices by the full amount of the value being created in the process. It is also possible and even likely that the efficiencies of the two capital markets do not differ. European investors may simply be equally incapable of foreseeing the changes in operational efficiency at announcement, but since operating performance does not improve, on average, after spin-offs this additional value component is missing and consequently the full amount of the value being created is reflected in the stock price immediately. Hence we would not witness any long run abnormal returns, as has been the case in the European studies done so far.

As mentioned earlier, the takeover activities following spin-offs between Europe and the U.S. differ substantially. Since takeovers are associated with relatively large acquisition premiums, their presence can lead to the long run abnormal returns reported in the U.S. but not existing in Europe. Therefore, future research could take samples from both markets over a very long time period so that there would be enough spin-offs that are subsequently taken over in Europe as well. Separate tests with different subsamples could shed light into the role of takeovers in value creation through spin-offs.

7. Conclusions

7.1. Summary

In this thesis I have examined the value creation through corporate divestitures, more specifically spin-offs. The sample consisted of European spin-offs that were announced between January 1st 1994 and June 30th 2006. There were three main objectives in the study; to check the stock market announcement effects of spin-offs, to find out the long run abnormal stock performance of these spin-offs and to analyse the industry-adjusted post spin-off operating performance and takeover activity in order to explain the potential differences in the long-run abnormal stock performance in Europe and the U.S.

I find positive and statistically significant cumulative abnormal returns of +1.83% to the shareholders of the parent company over (-1,1) days around the spin-off announcement. This value increases to 1.92% when only the sample of completed spin-offs is evaluated and further to 2.38% in the sample of only focus increasing spin-offs. The value creation is significantly related to the relative size of the spin-off. Increase in industrial focus, increase in geographical focus and change in operating performance show no significant explanation power. I also find insignificant long run abnormal returns for each subperiod in the four-year period around the spin-off announcement. Similarly, the change in operating performance, measured as the change in industry-adjusted return on assets, is not significantly different from zero over a five-year period around the spin-off announcement. The subsequent takeover activity after spin-offs is much lower than that reported in the U.S. studies.

These results imply that spin-offs create value in Europe and that this value is reflected in the parent stock price immediately at announcement since no abnormal stock performance was found in the long run. The sources of this value creation still remain unclear. Since operating performance does not improve after spin-offs, the contribution of improved efficiency as a value driver is limited. On the other hand, the relative size of the spin-off is positively related to the value creation, suggesting that efficiency does play its part. However, based on my results no efficiency change is reflected in the accounting measures over the two-year period after the spin-off. Thus the answer to my first research question, whether spin-offs create

value at announcement, is yes while the answer to the second one, whether operating efficiency improves after spin-offs, is no.

One objective of this study was to explain the potential, and now reported, differing results between Europe and the U.S. Two possible implications arise. One possibility is that the level of efficiency between the markets differs, also explaining the differences in the long run abnormal returns. The second and perhaps more convincing explanation is that the effects of spin-offs to operating performance of their parents differ in the two markets. This would explain the differences in the long-run abnormal returns given that the efficiencies of the two markets do not differ. Another plausible explanation is the post-spin-off takeover activity that is much higher in the U.S. than in Europe. The related acquisition premiums in the U.S. increase the long run returns of previously spun-off companies and translate into long run abnormal returns. This effect is minimal in Europe since takeover activity is lower.

7.2. Suggestions for further research

I have presented some potential reasons for the differing results in Europe and the U.S. regarding wealth effects from spin-offs, especially the long-run abnormal returns. Future research could take these findings as the starting point and further explore the differences. The sample could include spin-offs from both Europe and the U.S. over a longer time period so that there would be a sufficient amount of subsequent takeovers from Europe as well. Separate tests with different subsamples could shed light into the role of takeovers as well as other variables in value creation through spin-offs.

One step further would be to use a global sample to see whether the effects of spin-offs in the rest of the world are closer to those of Europe or the U.S. This approach would also enable more variables in the analysis, specifically country specific and e.g. legislative differences. However, this study would most likely be more fruitful later on when there will be more data available from the Asian growing economies such as India and China, as currently a vast majority of spin-offs is likely to come either from Europe or the U.S.

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